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N.U.R. Appeal to Minister of Transport

THE appeal of the National Union of Railwaymen to Mr. John Boyd-Carpenter, Minister of Transport & Civil Aviation, and his agreement to a meeting with the union on December 13, are the latest steps in the railway wages dispute. Mr. J. S. Campbell, General Secretary of the N.U.R., has stated that pressure from the rank and file may produce a serious situation now that the British Transport Commission has indicated to the union that it considers the previous wage negotiations to be closed. The proper course for the N.U.R. to follow, if it insists on pressing for further wage increases for its members, is to submit a new claim; the general impression is that such a claim would be pushed through the various stages of negotiations at some speed, no agreement being likely at these levels, and would then come before the final arbitrating body in the established negotiating machinery, the Railway Staff National Tribunal, in January. Threats of strike action have continued to be heard from the local union branches, and the N.U.R. leaders, evidently doubtful of their own ability to control, and fearing precipitate action from their members, especially if the Commission should declare its inability to meet any further wage

increases, have asked the Minister to restore to the railways "some at least of the £124,000,000 profit which the Government made from their rental of the railways during the years 1940-47." Part of this money, they urge, should be used "to create an atmosphere in which a settlement of fair claims of the railwaymen could be met" and part would be a contribution towards the capital development of British Railways. This is simply asking for a subsidy, despite an N.U.R. statement to the contrary, and the mention of capital development. Apart from the fact that some or even all of the £124,000,000 would be quickly exhausted on the objects mentioned by the N.U.R., a subsidy is objectionable as such. No further serious development in the railway wages situation seems likely before Mr. Boyd-Carpenter sees the union leaders. The undesirability of short-circuiting the statutory negotiating machinery by an appeal to the Minister at this stage need not be stressed. Meanwhile it is to be hoped that wiser counsels will prevail in the N.U.R., so sparing the country the forebodings and inevitable loss of goodwill towards railwaymen caused by the threat of another strike at Christmas—a recurring phase on which the public will put its own interpretation.

The Way Ahead

REASONS for the more hopeful outlook for the railways in the light of the impending capital development project are stated in plain and sober language by "The Man on the Line" in the current issue of *British Railways Magazine*, under the title "The Way Ahead." This year, he says, has seen some events which show that, at last, British Railways are coming to the end of "make do and mend" and are making a start, if only a small one, on their badly needed re-equipment and development. Among such events in 1954 he mentions as "little more than signposts to bigger developments ahead," the acceleration of passenger train services—which reflects well, among others, on the permanent staff; completion of the Pennine electrification; and introduction of the lightweight diesel train. He then draws attention to the recent announcement by Sir Brian Robertson, Chairman of the British Transport Commission, that a plan for capital development is nearing completion, and to intimations that the Chairman and others in authority there will do their best to ensure that the vast sums necessary for the implementation of the plan will be forthcoming.

Pullman Car Company Report

THE outstanding event of the year ended September 30, 1954, reviewed in the annual report of the Pullman Car Co. Ltd., was the acquisition by the British Transport Commission of the whole of the ordinary share capital. The net profit for the year was £73,197, an increase of £3,291 over the previous year. An ordinary dividend of 15 per cent is recommended by the directors, a repetition of the dividend for last year. If this recommendation is approved the balance carried forward will be increased from £157,797 to £210,172. The results for the year are a record and are particularly good when it is borne in mind that the figures for the previous year, itself a record, included some £6,000 derived from outside catering over the Coronation period. Gross receipts were £757,523 against £757,389 for 1952-53, and working expenses £584,810 (£588,510). The statement by the Commission that the company would continue to provide services in the same manner as before has helped to retain the loyalty and good services of the staff, and reports that Pullman facilities may be expanded have been well received by the public.

Encouraging Holiday Travel in the Western Region

FURTHER evidence of a vigorous effort to promote travel by rail is the announcement by British Railways, Western Region, of new fare concessions during the 1955 holiday season. The taking of holidays in the Spring and early Summer, when the country and seaside often are at their best, more particularly in the milder climate of the West of England and Wales, may well be encour-

aged by the issue of 8- and 15-day reduced fare tickets on Saturdays from April to May 21. They will be issued from Paddington and Birmingham to certain holiday resorts and centres in the West of England and Cambrian Coast, by specified trains. Some relief to the high-season Saturday passenger traffic peaks should be afforded by the mid-week tickets at reduced fares, available for travel outward on Tuesdays, Wednesdays, or Thursdays and return on the corresponding days of the following week or week after, to be issued from Paddington and Birmingham to the West of England and Cambrian Coast from May to September. The attraction of Autumn holidays will be increased by the repetition in October of the early season 8- and 15-day ticket concessions.

Overseas Railway Traffics

THE continuing reduction in Canadian railway traffics is exemplified by the figures for October of Canadian National Railways. Gross operating revenues in that month amounted to \$53,507,000, a decrease of \$5,796,000 compared with October, 1953. For the 10 months of this year to October 31, gross revenues were \$58,026,000 less than those of the first 10 months of 1953, which were \$588,835,000. Operating expenses for the same periods were \$521,313,000 for 1954 and \$558,768,000 for 1953, a decrease of \$37,455,000. The net operating revenue for 1954, \$9,496,000, compares with \$30,067,000 in 1953, a decrease for the 10 months of \$20,571,000. Canadian Pacific gross earnings for September were \$35,678,728, against \$39,326,680 last year, a decrease of \$3,647,952. In October, gross earnings were very similar at \$35,655,119, compared with \$39,756,933 in October last year. Aggregate gross earnings from January 1 were \$349,719,337, a decrease of \$43,272,715 compared with the same 10 months of last year. For the same period, aggregate net earnings fell from \$21,701,539 to \$19,593,899, a decrease of \$2,107,640. An encouraging feature is that working expenses were reduced in greater proportion than the fall in traffic, so that there were increases in net earnings, compared with last year, of \$192,018 in September and \$285,637 in October.

Diesel Trains in Cumberland

TWO-CAR diesel trains of the type described in our May 7 issue are now running between Carlisle and Silloth, as the first part of the plan to introduce such lightweight sets on some 120 route-miles of line of the London Midland Region in Cumberland. This is the second area chosen in the multiple-unit diesel development programme which was announced a year ago and is intended ultimately also to augment or replace steam services in Lincolnshire, East Anglia, the North-East Coast area, and Central Scotland. The first area selected was the West Riding, where diesel train services were introduced *en bloc* between Leeds and Bradford and Leeds and Harrogate with the 1954 summer timetable. The changeover in Cumberland, however, is being carried out piecemeal, with the Workington-Penrith-Carlisle service due to be introduced on January 3. Thirteen units are being used in Cumberland. The order for the power equipment was received by British United Traction Limited and the coaches are being built by British Railways at Derby.

New Sleeper-Renewing Machine

THE high cost of labour and necessity for economy in permanent way maintenance have combined to produce many mechanical aids of outstanding merit available to the maintenance engineer. We have in mind the mechanical tamper, ballast cleaner, various forms of relaying plant, rail welding and building-up, road-bed grouting and a multitude of portable and workshop tools. The latest addition to the list is the TieMaster, a diesel- (or petrol-) hydraulic machine designed and produced in the U.S.A. It is manned by an operator and two labourers and is capable of removing an old sleeper from the track, preparing the ballast bed for a new one and putting it in

place in 30 sec. It is claimed that one of these rail-mounted machines changed 40,000 sleepers at an average rate of one a minute, including the loading and lashing into bundles of the serviceable released sleepers. It has the advantage of not fouling adjacent tracks, and is said to reduce the cost of sleeper-renewal work to one-quarter that entailed by any other method. Further details are given in an article on another page.

Manchester-Sheffield Operating Improvements

IN presenting their paper on the Manchester-Sheffield-Wath electrification to the Institution of Electrical Engineers on December 2, Mr. J. A. Broughall and Mr. K. J. Cook did not hesitate to say that various features of the project might have been different had it been planned since the war instead of in 1936. Other aspects have presented operating problems which are being removed only in stages, while conditions arising from the situation of the line and its traffic caused technical difficulties which delayed realisation of some of the advantages hoped for. Mr. C. K. Bird, Chief Regional Manager, Eastern Region, during the discussion on the paper, mentioned that a nine-coach train had been hauled by an electric locomotive from Sheffield to Penistone in 15 min., compared with 19 min. with seven coaches which had been thought a good performance with steam traction. The time for goods trains from Wath to Mottram has been reduced progressively from 5 hr. 5 min. with steam to 2 hr. 20 min. with electric haulage, and the average speed of freight trains per hour has been raised from 8.4 to 10.5 m.p.h., an improvement of 25 per cent.

Passengers Attracted by Electrification

ALTHOUGH improvement of freight working was the primary reason for electrifying the Manchester-Sheffield-Wath lines, passenger services are deriving benefit already from the conversion. Commenting further on the paper mentioned in the previous note, Mr. Bird said that between September 20, when public services began, and October 30 there had been an increase of 37 per cent in passenger traffic between Manchester and Sheffield. The scheme also includes the suburban service with multiple-unit stock between Manchester and Glossop, inaugurated on June 14. A remarkable revival has been experienced here; increases are reported in passenger journeys and receipts of over 125 per cent. This is the more satisfactory in that there were once local misgivings over the substitution of open stock for compartments. Now there is clear evidence that the coachwork and electric heating of the new vehicles provide the standard of comfort required. The electrified Manchester-Glossop services offer considerable improvement in frequency and speed. When, by extension to Rotherwood, the remaining steam-hauled services are removed from the main line, it may be felt that the way is clear to making similar improvements between Manchester and Sheffield.

Dome Cars

THERE have been some curious developments in the design of the dome cars which are now becoming so popular a feature of long-distance American railway travel. The cars first built incorporated central domes, glazed all round and partially on top also, thus affording the passengers unobstructed views over the tops of the trains as well as of the summits of the highest peaks when travelling through mountain country. At the ends of these cars lounges were provided at the normal floor level, and by dropping the floors between the bogies, the generous dimensions of the American loading gauge permitted the provision also of lounges beneath the domes. The next development was to build cars with domes extending to their full length, to increase the upper level seating space available, but this type of construction ruled out passenger accommodation at the normal floor level above the bogies. Now the Santa Fe has built cars in which the seating is exclusively on the upper level; moreover, this has side

windows only and no end windows or roof glazing, so that most of the advantages of the previous dome travel are no longer available. The lower deck is given over to luggage lockers, lavatory accommodation, and lighting and air-conditioning equipment. Without the view over the top of the train given in the earlier domes, it is difficult to understand how the expensive and extremely weighty construction of these latest cars is fully justified, apart from the increased seating accommodation made possible by keeping lavatories and entrance vestibules on the lower deck.

The German "52" Class Engine

DURING the last war there was considerable manufacture of steam locomotives in Germany and the occupied territories. The evolution was parallel to that in England. A first 2-10-0 war design ("50" class) was built in 1939-40 and followed by the true "austerity" 2-10-0 (class 52) in 1941-45, the steps in Britain being the modified Stanier 2-8-0 followed by our "austerity" 2-8-0, though these were supplemented by the American 2-8-0 and British 2-10-0 classes. As was shown in a paper to the Institution of Locomotive Engineers in 1947, production of the German "50" and "52" classes reached something like 7,500. But in heavy postwar traffic the necessary maintenance of the "52" class locomotives has proved uneconomic. Most of these locomotives have been withdrawn and many are standing derelict in long lines. Some 3,000 miles of travel in Germany this year have shown only two in steam and both of them at Minden, close to the eye of the Bundesbahn Zentralamt. On the other hand many hundreds of the earlier semi-austerity "50" class are at work all over Western Germany in passenger and freight traffic, and with the old "P38" 4-6-0 engines seem to form the backbone of German motive power for everything except the principal passenger and freight services.

An Opportunity Missed

REOrganisation of the British Transport Commission is a natural consequence of the approval given by Parliament a fortnight ago to the scheme for reorganisation of British Railways in implementation of the Transport Act of 1953. The interim organisation, which has been in force since October 1 of last year, is to be replaced on January 1 by the new structure outlined elsewhere in this issue. This presumably is to be as permanent—with allowances for certain possible changes already under consideration—as can be hoped for amid the vicissitudes of politics; for no Government since the war has seen fit to let the railways and other transport undertakings, now nationalised, function free from interference.

Here was an opportunity, now that the present Government has expressed its will as to the organisation of nationalised transport in the Act of 1953, to erect a structure which should be efficient, and, whilst permanent, elastic enough to allow for future changes envisaged. At the same time it must be in accordance with the Transport Act, 1953, and notably with the sections concerning British Railways. A good many provisions of that Act—such as the formation of Area Boards—we believe, as we have said on previous occasions, to be unsound. In saying that the opportunity of reorganising the Commission on a satisfactory basis has been missed, we are aware that those who drew up the new organisation were restricted by the Act of 1953. In general the new organisation is top-heavy and too complex; it bears the mark, as is perhaps inevitable, of a military mind. Something simpler might well have been devised, which would have been much more suitable for a group of undertakings run, like nationalised transport, on a commercial basis. Much has been made of the manpower economies which are to result from the reorganisation. No figures so far are available, but it is hard to see how any considerable overall saving can be brought about. The formation of Area Boards, for instance, must result in some, even if slight, increase in staff.

On the credit side, the change of title of the Chief Regional Managers of British Railways to General Managers is welcome. The separation of docks management from that of inland waterways seems to be a rational step. The reorganisation of the Commission's non-railway undertakings seems reasonable in so far as they do not share the disadvantages of the whole structure. It is British Railways, by far the largest of the undertakings, which are the most adversely affected. The Area Boards, though they are to be concerned for the time being only with their respective Regions of British Railways, are so named because at a later date they may be given responsibilities as to other undertakings of the Commission.

The main criticism is that a new layer is interposed, in the new organisation, between the Commission and the new Area Boards. This, the British Railway Division, has been omitted from the diagram drawn by the Commission staff and reproduced on page 655 because, it is emphasised by the Commission, it is not an executive layer like the British Road Services and other Divisions. Granted even that, with increased decentralisation, few matters affecting British Railways will need to go higher than the Railways Division, and granted that only the more important matters need to be referred to the Area Boards, there are in fact two layers between the General Manager and the Commission, namely: Area Board and Railways Division, even though the latter has no executive powers. Furthermore, the structure of the General Staff of the Commission seems unnecessarily complex. It may well be that things will work out in practice, but there are bound to be growing pains, and the necessity to accustom themselves to the ramifications of the organisation must place an additional burden on Regional and Commission staffs already busily engaged. The new arrangement seems to place a great deal of work on the central staff of the Commission. The position of Secretary General is anomalous, at an elevation incompatible, surely, with his actual responsibilities. It is not clear why the Chief Secretary, who will continue as the Secretary of the Commission for legal purposes, should be shown, as in the diagram, as in any way responsible to the Secretary General. The same consideration to a certain extent applies to the Chief Solicitor, in that in his case the chain of "co-ordination" is through the Secretary General. One would have thought that both these senior officers could have been given higher status. The separate indication of Committees and Sub-Committees of the Commission seems simply to be recognition of an existing state of affairs.

The Advisers include some whose duties seem to be much more than advising: the Public Relations Adviser, Mr. J. H. Brebner, for instance, is now the head of a department by no means confined to advice on matters of policy; and the Manpower Adviser, Mr. W. P. Allen, hitherto has been much concerned in negotiations on the wages of British Railways staff. It may be that under the new organisation such negotiations will be left increasingly to the British Railways Division. It is undesirable that these matters should be dealt with at the highest level in the Commission—let alone by the Chairman, Sir Brian Robertson, as in a recent instance—and the negotiating machinery seems to allow of this, although negotiations must be on behalf of the Commission. The Technical Adviser, Mr. J. Ratter, who now will be concerned with all matters affecting the Commission as a whole in the technical sphere, is a civil engineer who has spent his professional railway life in civil engineering appointments, but has had general technical experience in the Army. The Traffic Adviser, Mr. David Blee, presumably will be concerned mainly with the commercial aspect.

As to the British Railways Division, a noteworthy step is the appointment of a Chief Operating & Motive Power Officer, which implies that operating questions will tend, rightly, to be confined to the Regions and to inter-Regional relations; Mr. R. F. Harvey, who has been appointed to this post, has had operating experience during his career as a mechanical engineer. One of the most important elements in the central control of the railways is the General Managers' Committee. If this is left to function,

as it did before the war, without any external interference, it should be able to go far to ensure efficient operation; although the Committee meets at Commission headquarters, there are indications that this will be the case.

It is a pity that the opportunity has been lost of creating something both simpler—and more permanent, for it is not unlikely that a change of Government would result in modifications. We have stated our views before on the form that the management of the railways should take. The whole of the nationalised transport undertaking should be governed by a board of part-time directors with a full-time Chairman and possibly Deputy-Chairman, with perhaps a Secretary. Under this board would the central management of the railways, a small body under a Chief General Manager, and a minimum of deputies and subordinate technical officers for central matters, which would include law and finance charges, and labour matters. (This point is not really met by the creation of the General Secretary and his staff.) Under this would come the several railways, as they should be called. This surely would have been a better solution than the complex and top-heavy structure that now comes into being, with considerable risk of clogging the machinery of nationalised transport.

Modernisation in Malaya

WHEN improvements to the track are completed next year the Malayan Railway expects to be able to increase the maximum speed of trains between Singapore and Kuala Lumpur. At present the best passenger train time for the 246 miles is 9 hr. 50 min. The aim is to reduce it to 9 hr. by overnight trains. But for the present emergency the restoration of the main line to its high prewar standard would have been completed earlier; until now one of the prior claims has been the relaying of the East Coast line, 200 miles of which were removed by the Japanese during the war.

The relaxation of the overall speed restriction will permit the faster movement of freight, ensuring quicker transit of perishables from the growing areas of the Federation south-eastwards to Singapore and of imports in the opposite direction.

The railways budget for next year totals \$58,940,000. Operating expenditure on railways and ports is reckoned at \$51,636,800, and \$12,349,200 is included in respect of special services for railways and ports. Token amounts have been entered for the purchase of main-line diesel locomotives and diesel railcars. Reports mention six main-line diesels of 1,000 h.p. as a first instalment. The intention is to use railcars on local service in the Kuala Lumpur and Port Swettenham districts. Colonel H. S. Lee, Member for Railways & Ports, in submitting the estimates to the Federal Legislative Council, termed the diesel programme a "modest start" to the Malayan Railway plan to build up a fleet of diesels. At present the only diesel locomotives are 23 shunters, 20 of them 350 h.p. diesel-electric units supplied by the English Electric Co. Ltd.; the North British Locomotive Co. Ltd. is building six 300 h.p. diesel-hydraulic shunters. Capital for the proposed diesel purchases is being sought from Government loan funds, and the railway is anxious to obtain early delivery further to improve existing services. More than \$1,561,000 is to be spent on preliminary works and consulting engineers' fees in connection with the North Klang Straits project, which is part of a \$30,000,000 plan for new wharves at Port Swettenham. Revenue from the port has risen steadily since 1953, when it was \$6,300,000, and in 1955 is expected to be \$6,400,000, with the port handling a greater tonnage. Other items of special expenditure listed for next year include \$800,000 for relaying between Batu Junction and Tanjong Malim, \$2,900,000 for replacement of coaches, and \$200,000 for development at Petaling Jaya.

The railway passenger operating revenue is expected to increase by \$1,240,000 to \$18,100,000. It is considered that the increase in revenue resulting from the resumption of services on the East Coast line for a full year and the

additional services introduced in Johore will be offset a little by a slight fall in passenger journeys elsewhere caused by a reduction in spending power and fewer military and police movements as the Emergency situation continues to improve. Although locomotive mileage is expected to be nine per cent (600,000 miles) higher because of the increased train services, economies more than outweighing this are expected to be realised by the conversion of more locomotives from coal to oil burning; almost 100 of the 137 locomotives scheduled have been converted and the programme should be completed by next June.

The estimates show that no less than 63 per cent of the total operating expenditure is accounted for by salaries, wages, allowances, pensions, and provident fund contributions. Colonel Lee said that next year, and probably this year, the railway would be able to make a full contribution of more than \$5,000,000 to the renewals fund; this had not been possible before 1953.

Railway and Coastwise Shipping Problems

A PARALLEL between the problems of the railways and coasting shipping was drawn by Mr. M. Arnet Robinson, Managing Director, Coast Lines Limited, in his recent paper read to the Institute of Transport. He said that after the first world war it was clear that the essential rehabilitation of the railways could not be achieved in terms of indiscriminate competition. The country as a whole accepted that fair and reasonable conditions of employment should rightly be the first charge on any industry. The same background pertained largely to coastal shipping. Few people, Mr. Robinson maintains, expected that the railways or the coasting companies would be put back into a condition of profitability by increasing or even maintaining the number of competing units. This led to the grouping of the railways into four companies in 1923, and the number of coasting companies was reduced by mergers.

The real difficulty of coasting shipping, Mr. Robinson says, lay in meeting the competition of very low railway exceptional rates. He claims that many rates were in no way justified by commercial necessity and were actually detrimental to railway revenues. He regrets that railway rates were kept at an artificially low level during the war of 1939-45, as the subsequent increases appeared to be very great because the starting level was so low. Coasting rates are inevitably linked with those by rail, so that coasting shipping was affected equally in this matter.

Both railway and coasting liner companies have rate structures with a considerable element of "what the traffic will bear." The development of road transport has had a profound effect on the whole system of charging. Road transport is prepared to carry any goods of reasonable stowing capacity and value at about the same rate, which has involved both railways and coasting liner companies in a reduction in the charges for higher rated goods. This altered basis, Mr. Robinson states, is now regarded as something which must be accepted, and the railways are working on a revised system of charging based on "loadability." The effect on coasting shipping remains to be seen.

Commenting on the participation of shipping companies in air transport, Mr. Robinson points out that his company, in conjunction with the railways, pioneered, years before the last war, the internal air routes with which they were legitimately concerned. Even now that they are able to participate in certain air operations, they are unable to develop scheduled main trunk air services.

Mr. Robinson's paper is of great interest as representing the views of an industry which has many difficulties in common with those of the railways, but remains under private ownership. It is evident that the close relations between coasting shipping interests and the British Transport Commission, fostered by the Coastal Shipping Advisory Committee set up under the Transport Act, 1947, are justified by the similar nature of the problems encountered.

Signal Engineering in Germany

IT was with justification that Herr G. Reschuh, of Siemens & Halske, in his recent paper to the Institution of Railway Signal Engineers, said that signal engineering in Germany had a long tradition. He could have claimed no less correctly that those concerned had reason to be proud of their achievements. While interlocking and block apparatus did not appear in Germany until some time after it was in use elsewhere, it then developed rapidly on lines of its own to a state of efficiency, resulting in a corresponding freedom from serious accidents. Traffic did not increase in the early years of railways to the same extent as in Britain, nor were high speeds usual. Nevertheless, the need for signalling of some kind made itself felt.

The principle of the space interval early became accepted and was given practical form in 1846 by the electric signal gong apparatus, still so much in evidence on the Continent. A great variety of fixed signals came into use, so much so that the railway writer Weber in 1867 said they presented "a chaos of signs and meanings." These disadvantages were diminished to some extent in 1870 when the then North German Confederation issued official signalling regulations, and in 1875 a code of signal aspects was laid down for the new German Empire with, however, some agreed divergences here and there, particularly on the Bavarian lines. In 1892, again except in Bavaria, where the change was not effected for some years, the green light replaced the white for "clear" in all stop signals. In 1910 the double-yellow "caution" aspect was introduced for the distant disc signals, but not applied generally for some time. After the fusion of the State railways in 1920 to form the Reichsbahn, a general standardisation programme was initiated and a speed signalling system of aspects adopted. These had long been known in Bavaria, but elsewhere route signalling had been followed.

Concentration and interlocking of levers was first tried about 1868, when the first signalling firm was established. With the great increase in traffic after 1871 a large amount of equipment was wanted, and many other firms entered the field, most of them now only names. The double-wire system for signals and bolts was proposed soon afterwards and although some parts of the German Empire adhered to rodding for points, the double-wire system became standard for mechanical installations, being developed to a remarkable degree of perfection. The variety of equipment in the States led to attempts to arrive at a standard mechanical system, applied to new work after the national railway organisation was set up.

There was no block apparatus, properly so called, until 1871, when the a.c. magneto system appeared. It developed into an interlocking block and spread throughout Germany and into those countries which adopted German types of equipment and methods of traffic working. It was used on both double and single lines and for controlling the working in the interior of stations, proving a particularly adaptable piece of mechanism. This block was invariably absolute, no permissive working being allowed. For several reasons automatic signalling was slow in securing favour.

In 1913, the first section of track circuit automatic signalling was opened on the Berlin Elevated and Underground line, with equipment supplied from the United Kingdom. The advantages of such working were recognised, but the prevalence of steel sleepers and the presence of many level crossing block posts retarded extension to the main lines. Eventually the Berlin City and suburban lines were equipped and since the last war other installations have appeared, some very important.

The development of power interlocking has received great attention in Germany and much excellent apparatus has been constructed there, beginning with the Westend, Berlin, installation of 1896. The all-electric system has been the most favoured, although some hydraulic, low-pressure pneumatic and electro-pneumatic signalboxes were built. The equipment, with its controlling circuits, has passed through several stages of design.

Individual lever working had to be followed as long as there were no shunt signals, as understood in Great

Britain, and mechanical locking always was used. Compactness of equipment was obtained in the later designs by arranging the operating handles in two or more rows. Not long before the last war, with the extension of the practice of signalling shunt movements, new methods began to engage attention, with the result that route setting, using relay interlocking push-button panels, has replaced the time-honoured frames in all new work.

Remote control also has been resorted to, as for example between Bebra and Cornberg, with reversible line working, and in the centralised traffic control installation between Nuremberg and Regensburg. The manufacturing processes followed include extensive use of pressed and moulded units, with plug-in connections, while train time recorders and an interesting train describer system add to the effectiveness of these latest installations in which the unit principle of construction has been greatly developed.

Automatic train stops and train control early attracted attention in Germany. One of the most interesting devices was Stahmer's magnetic cab signal of 1911, while the Van Braam mechanical apparatus was tried in various forms from 1906 to 1927. Inductive, optical and wireless appliances also appeared. An unfortunate run of accidents some years ago led to much intermittent inductive frequency type a.t.c. being applied to certain main routes. Both distant and stop signals were fitted, with a speed control checking point between. The apparatus worked without visual cab signals on the vigilance and acknowledgment principle, to maintain to the fullest extent direct observation of the fixed signals. The apparatus has since been further developed. The work done in Germany in marshalling yard equipment and axle counting also has been remarkable, and Herr Reschuh's paper left no doubt that the tradition to which he referred was being worthily upheld by those responsible for its maintenance today.

A Statistical Query

(By a North Eastern Correspondent)

SINCE nationalisation the statistic "net ton-miles per total engine-hour" has been in high favour with the powers that be. The upsurge of the statistic over prewar years was hailed as a sign of improved efficiency on the part of British Railways. When the upward trend continued through the troublesome years 1950 and 1951, the popularity of the figure was ensured. The progressive advance of the symbol from 1937 to 1953 is shown below.

1937	...	...	...	466	1950	...	...	578
1938	...	...	...	461	1951	...	...	595
1948	...	...	...	547	1952	...	...	605
1949	...	...	...	563	1953	...	...	619

The query is what the rise represents.

The statistic is simply the result of dividing total net ton-miles by total engine-hours. Since the war changes in the national economy have inflated ton-miles by lengthening the average haul of freight traffic. The removal of private owners' wagons and industrial developments, especially in coal mining and steel manufacture, lessened shunting time year by year and cleared the way for more through working on the unified railways. The steady decline in the number of wagons loaded with merchandise also cut out much shunting work.

In 1953, the railways handled 2,076,000 fewer merchandise wagons than in 1948, and avoided much wagon sorting at the price of losing some 6,000,000 tons of high-rated traffic. Between 1948 and 1953, ton-miles increased 6.1 per cent, while train-hours were reduced by 3 per cent, shunting hours by 12 per cent and total engine-hours by 7.1 per cent. Shunting hours, which outnumber train-hours but do not produce ton-miles, thus have a big influence on the calculation of "net ton-miles per total engine-hour."

A passage in the British Transport Commission report for 1953 states that all Regions contributed to an advance of 2.3 per cent in the statistic over 1952, the range being from 3.9 per cent in the Eastern to 0.9 per cent in the Western Region. A comparison of nine significant results

for the two Regions is given below, and dispels any notion that operating improved in the Western Region.

The first six entries in the table show that, in coping with a smaller rise in ton-miles than the Eastern Region had to meet, the Western worked additional train-miles

Statistic	Eastern Region			Western Region		
	1953 result	Inc. or dec. on 1952	Inc. or dec., per cent	1953 result	Inc. or dec. on 1952	Inc. or dec., per cent
Ton miles (million) ...	4,805	+162	+3.5	4,232	+131	+3.2
Train miles (000) ...	27,477	+259	+1.0	26,013	+456	+1.8
Train hours (000) ...	3,111	+18	+0.6	3,037	+147	+5.1
Shunting hours (000) ...	2,753	-72	-2.5	3,642	-23	-0.6
Total engine hours (000) ...	6,478	-22	-0.3	7,513	+164	+2.2
Train load (tons) ...	175	+4	+2.5	163	+2	+1.4
Net ton miles per train hour	1,290	+27	+2.1	1,093	-20	-1.8
Train speed (m.p.h.) ...	8.83	+0.03	+0.3	8.57	-0.27	-3.1
Wagon miles per train hour	249	+2	+0.9	207	-7	-3.4

and train-hours more freely and was less successful in increasing train loads. The last three entries point to a loss of mobility in the Western Region and to a gain in the Eastern. So far from the Western operating being 0.9 per cent better, its performance was worse than in the year of transition, 1948, when it turned out 1,176 net ton-miles in a train-hour, had a train speed of 9.15 m.p.h., and worked 238 wagon-miles in a train-hour. These results surpassed the Eastern, but after 1949 the Western retrograded, while the Eastern pushed ahead until its output was exceeded only by the North Eastern.

During the first 36 weeks of 1954, traffic volume on British Railways diminished and the trend of all-line statistical averages turned downward. A very steep decline was averted by the Eastern and North Eastern Regions which worked more ton-miles and kept operating results above the 1953 level. One wonders what the position will be by the end of the year and whether the statistic "net ton-miles per total engine-hour" will fall from grace.

LETTERS TO THE EDITOR

(The Editor is not responsible for opinions of correspondents)

Manufacture of Diesel and Diesel-Electric Traction Equipment

December 8

SIR,—Mr. D. Wilson's letter in your December 3 issue is so fundamentally fallacious that one can only fervently trust that his reasoning and viewpoint are not shared by many of your readers.

Briefly, Mr. Wilson seems to be suggesting that it is wholly desirable for the manufacture of the electrical, diesel and diesel-electric traction equipment that will be required in the projected British Railways rehabilitation programme to be undertaken within the existing technical and manufacturing resources of the British Transport Commission, thus enabling the private manufacturers to concentrate on valuable export orders.

It is beyond my province to comment for the manufacturers of electrical equipment, but on behalf of the manufacturers of traction equipment I would state that:—

- (1) The private manufacturers in this country are seriously handicapped in their pursuit of export orders by the fact that British Railways, unlike the home systems of every other country in Europe, United States and Japan, have not so far obtained their locomotives in quantity from private industry.

This position is, of course, exploited to the full by the industry's competitors abroad who naturally tend to suggest to our potential customers that there must be something wrong with our products as British Railways do not use them.

- (2) Quite apart from the obvious economic disadvantages of the absence of a satisfactory home market, the locomotive industry in this country, unlike its European, American and Japanese counterparts, is rarely able to display and offer locomotives with proved operating records on British Railways.
- (3) Whereas the above points have been bones of friendly contention between private industry and the British Transport Commission for many years past, it is surely generally conceded that the major programme of re-equipment and rehabilitation that is about to be published can only be successfully achieved in the foreseeable future by close and dynamic collaboration between the British Transport Commission and private industry.

It is the earnest belief of all private manufacturers that we can make a considerable design and manufacturing contribution as regards the modernisation of British Railways rolling stock, and should we be privileged to collaborate to this extent, I would

assure Mr. Wilson that our ability to continue to obtain important and valuable export orders would be strengthened, not impaired.

Yours faithfully,

J. F. ALCOCK,
President

Locomotive Manufacturers' Association of
Great Britain,
82, Victoria Street, London, S.W.1

Museum at Longmoor Camp

December 3

SIR,—May I please make an appeal to your readers on behalf of the Royal Engineers Transportation & Movement Control Museum at Longmoor Camp, which many may have seen? Much work has been done on this in the past six years and it is now beginning to show signs of progress. We are, however, still in need of more exhibits and particularly of a type suitable for display in show cases, but we will take any articles, maps, photos, or documents. All exhibits should be accompanied by a short history.

At the present time the museum includes the locomotive *Gazelle* (on long loan by the courtesy of the British Transport Commission), Queen Adelaide's coach, and a small exhibit of the "Mulberry" Harbour; and we have just acquired a uniform of a soldier of the Crewe Volunteer Engineers. The latter has been presented to us by the Chairman and Members of the Crewe & District Branch of the Royal Engineers Association. Among other things we would like to have more such uniforms, or details of them.

The museum at Longmoor Camp does not in any way compete with the main Royal Engineers Museum at Chatham. We are interested only in those branches of the Corps which are trained at the Transportation Centre and wish to bring our records up to date before they are irretrievably lost. In this we must rely on information sent us by any interested person. All exhibits must have a direct relationship to military railways, docks, inland water transport, or movement control activities in any part of the world.

In addition to the historical side of the museum we also try to depict the various sides of our work for the benefit of visitors and our new recruits.

Any exhibit will be gladly received by the Commandant, Transportation Centre R.E., Longmoor Camp, Liss, Hants, and, when put on view, the donor's name will be displayed.

Yours faithfully,

C. H. BARNETT,
Brigadier, Commandant,
Transportation Centre, R.E.

Longmoor Camp

THE SCRAP HEAP

Hobby

A retired railway porter who has made a model of Euston Station out of damson stones probably did it purposely. It is not the sort of thing one does involuntarily or in an absent-minded mood.—*"Beachcomber" in the "Daily Express."*

Dan Leno—of St. Pancras

Dan Leno, the greatest comedian this land . . . ever knew, was born at No. 4, Eve Court, Kings Cross, London, in 1860. The site of that house is now covered by St. Pancras Station and it was Dan's delight to say that they really meant to call it St. Dancras, in memory of him, but owing to an unfortunate misprint it was St. Pancras instead. . . . He was only in his 45th year when the last curtain fell. Might one not hope that the British Railways, a national possession, might honour another national possession—the great clown who was born where St. Pancras Station now stands? Might they not put a plaque there to commemorate the fact? —*W. Macqueen-Pope in a B.B.C. broadcast.*

Better Behaved Spotters

A special appeal to engine spotters by posters and in the newspapers to adopt a "Spotters' Code" and thus relieve the London Midland Region of anxiety for their safety is having excellent results.

The campaign was launched because unruly behaviour by spotters has forced the London Midland Region to ban

them temporarily from Crewe, Willesden Junction, Tamworth, Blisworth, Stafford, Preston and Manchester London Road stations. It wants to lift the restrictions at these stations as soon as possible and is most anxious not to have to impose them at any other stations. "We want you to have every chance to gather information in perfect safety" is the message on 5,000 posters exhibited at all London Midland Region stations.

Days per Train

A correspondent who has returned recently from a trip to Australia, relates how at Cobar, which he describes as a railhead "nearly in the outback"—it is in New South Wales, nearly 500 miles from Sydney, and the terminus of an 82-mile branch from Nyngan—he asked how many trains there were per day. The question was greeted with a roar of laughter and the reply "You mean, how many days per train." A recent timetable showed four trains each way per week on the branch, one being a diesel and the other three mixed trains.

Secret Railway Competition

Although I have done the rail journey from London to Birmingham many times, and am an inveterate looker-out of windows—I cannot read in trains . . . I speculate endlessly about a wooden sign, attached by brackets to the wall of a little brick hut just outside New Street Station, which said, in nine-inch letters, Prize Length.

The fact that, on my last journey, this sign had been taken down only

whetted my curiosity. Prize length of what? Is there a secret railway competition to test engine drivers' skill in judging distance, and was this sign the displayed shield or trophy by which some Birmingham driver brought honour to his region, only to lose it to Crewe this year? What is in that hut, is there some sort of magical quintessence or distillation of Length, the Principle of Railways—a vibrating, awesome realisation of the Platonic Form of Length, emitting a godlike single note? —*Paul Jennings in "The Observer."*

"Umbrellas" as Train Alarm Signal

Among a collection of books, prints, and other material on show at Foyles Art Gallery, Charing Cross Road, London, W.C.2, depicting the development of railways in the 19th century, is a letter from "Elizabeth Thompson of Sedbergh" to the directors of the L.N.W.R., suggesting a method of communication between passengers and guard.

The suggestion, which was accompanied by "design sketches," consisted of a series of miniature "umbrellas" on the carriage roofs, linked by a cord to the wrist of someone on the footplate. It was intended that a tug on the cord should attract the attention of the man on the footplate and cause the appropriate "umbrella" to close and so indicate the seat of distress. There is no record that the idea was ever seriously considered.

Happy Day

Fleet Street, with its unflagging zeal,
Is always ready to reveal,
Pro bono publico, some tale
Of the shortcomings of the rail.

One zealot tried to estimate
(So rumour runs) just how much weight
Some railwaymen might lose through
sweat
If faced with earning what they get.

Of course, such arid speculation
Was doomed beforehand to frustration.
Reversing rapidly, they feel
Maybe we still need a square deal.

So, once again, goes out the call:
"The railways must have capital!"
Such is the potency of pelf—
Why, I could do with some myself.

I timidly look forward to
The years to come, when Waterloo
Has said farewell to smoke and steam
And oily silence reigns supreme.

I wonder if, in the long run,
Millenniums will be much fun;
Still, if this one must come, so be it—
May I live long enough to see it.

But, oh, what changes must take place,
What wholesale increments of grace,
Ere main-line porters cease to "weasel,"
And I get chummy with a diesel!

A. B.

Bygone Washington

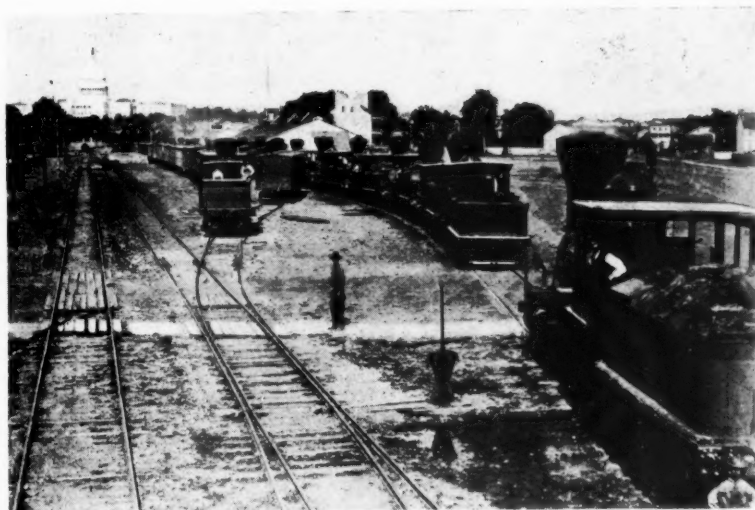


Photo courtesy

[Brotherhood of Locomotive Firemen & Enginemen's Magazine

In the yards at Washington during the American Civil War of 1861-65, showing typical wood-burning locomotives of the period. The yards extended almost to the grounds of the Capitol, seen in the background

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

EAST AFRICA

African Social Hall in Nairobi

A new African social hall has been opened in Makongeni, Nairobi, by Mr. A. F. Kirby, General Manager, East African Railways & Harbours. Makongeni is a model village which the administration is building for its African staff. About 9,000 persons are living in the colony.

In the hall it is proposed to hold cinema shows, dances, evening classes, and instruction courses for women during the day; there will be a library and reading room, facilities for indoor games, and a canteen. Half of the cost of the building has been paid from African Welfare Funds and half by the East African Railways & Harbours Administration.

INDIA

Availability of Restaurant Cars

Restaurant cars, at present used only by upper class passengers, may in future be thrown open to third class passengers also. The existing separate entrances and exits at railway stations for upper class passengers may also be abolished and there will be a common entrance at stations for all classes of passengers.

Abolition of First Class

It is understood that the first class will disappear entirely on March 31 next. At present first class accommodation

is available only on 13 trains throughout the country.

From October 1, 1952, the first class was withdrawn from most of the branch line and the less important main line trains, reducing the number of trains with first class accommodation to 515. From April 16, 1953, it was withdrawn from all branch and main line trains, except the mails and expresses and some other important trains, and it was withdrawn from trains generally, except a few short- and long-distance trains, from October 1, 1953.

JAPAN

Hopper-Bottom Ballast Wagon

The Permanent Way Department of the National Railways has put into service in the Tokyo district a two-bogie hopper-bottom ballast wagon with a capacity of 30 tons. The ballast falls through the hoppers on to rubber conveying belts extending across the width of the wagon and drops to the sides of the track by gravity. Unloading takes place at the rate of 80 cu. m. (104 cu. yd.) per hour.

CANADA

New Line in Quebec

The first contracts for the construction of the C.N.R. line into the mining district of Chibougamau, Quebec, have been announced. The branch will run

from Beattyville to Chibougamau, about 155 miles. Chibougamau is a copper-gold mining area some 350 miles north of Quebec City. No cost estimate is given in the latest announcement but earlier this year it was indicated that the branch would cost about \$100,000 a mile.

The contract for that section between Beattyville and Bachelor Lake has been awarded to La Société d'Enterprises Generales Ltée. of Amos, Quebec. The firm of Albert Lemieux Limited of Montreal has received that for the remaining section from Bachelor Lake to Chibougamau.

UNITED STATES

End of Long Island Receivership

On August 12 the plan for the re-organisation of the Long Island Rail Road, described in our August 13 issue, received the approval of the Interstate Commerce Commission, and from that date the Long Island assumed the status of a "railroad development corporation," in accordance with a law enacted at a special session of the New York State Legislature in June. On August 13 the 20 per cent increase in fares contemplated in the plan, to help to finance the \$60,300,000 rehabilitation programme, came into effect.

During the first 12 years of the re-development period, the Pennsylvania Railroad has agreed not to receive any dividends or other payments on its shareholding in the Long Island, and for nine years from now the latter is to be exempt from all state and local taxes other than real estate taxes, which are to be frozen at levels already agreed with the city of New York and the Nassau and Suffolk counties. The city of New York is not in agreement with all features of the plan, however, and is preparing to attack it in both the State and Federal courts. The new board of the Long Island held its first meeting on August 18.

BRAZIL

Financial Assistance for Railways

The Brazilian Bank for Economic Development has advanced the equivalent of £7,000,000 to Rede Viação Parana-Santa Catarina for re-equipment and £6,055,020 to E.F. Noroeste for improvements to the permanent way. The Bank of Brazil has been authorised to open a credit of £399,200 for improvements to the E.F. Sampaio Correa.

Santos-Jundiai Railway

The Government has approved a project by the Technical Commission, recommending loans of US \$15,856,400 and 331,672,550 cruzeiros (£6,633,451),

New East German Motive Power



New 4-6-2-type passenger locomotive built by the V.E.B. Lokomotivbau Karl Marx, Babelsberg, Eastern Germany, and new coach on exhibition

to the Santos-Jundiá Railway. The loans will finance the purchase of 20 suburban electric units, rails for 105 km. of line, 114,000 sleepers, 25 shunting locomotives, c.t.c. installation, and cover the cost of bridge and permanent way overhaul.

This part of the original project was deferred, as the Brazil-United States Commission gave priority to a programme to equip 115 locomotives and 2,883 wagons with automatic couplings and air brakes, replace 2,332 wagons of light construction and limited capacity by 470 box and 630 gondola wagons, with approximately the same aggregate capacity (48,000 tons).

Rapid, efficient and economical exchange of freight and passenger traffic between the Central, Santos-Jundiá and Paulista Railways was hampered by the fact that the rolling stock of the two last-named had shackle couplers and vacuum brakes, but that of the Central had automatic couplers and air brakes. Through running of goods and passenger stock was therefore impossible.

SWITZERLAND

Progress of Doubling

The ten-year improvement programme undertaken in 1948 by the Federal Railways included doubling 144 miles of single line. About 62 miles remain to be completed. The Olten-Neuchâtel-Lausanne main line is single between Olten and Olten-Hammer, Oensingen and Dietingen, Biel and La Neuveville, Gorgier-St. Aubin and Yverdon. As doubling into Yverdon Station requires much planning, which will take time to prepare, attention is being directed to the section along the Lake of Biel. The average traffic over single line sections amounted in 1953 to 72.3 trains daily between Yverdon and Gorgier-St. Aubin and 74.1 between La Neuveville and Biel.

It would have been desirable to begin work at Biel but there are difficulties on the Biel-Twann section as the Can-

ton of Berne is requiring part of the railway property to widen the road by the lakeside. The more-easily completed La Neuveville-Twann section, 3½ miles, connects with the doubling carried out in 1917 between Neuchâtel and La Neuveville and includes station improvements. At La Neuveville a passenger subway and an additional platform on the side towards the lake are being provided. At Ligerz there will be a similar platform, and at Twann a middle platform with subway is to be built and loops 503 yd. long, to allow trains to overtake, will be laid in. All three stations will have electric power signalling frames and the passenger and office accommodation is being reconditioned. The Federal Railways hope to abolish some 50 of the 59 level crossings on this section by building eight or nine underbridges and constructing parallel roadways.

The work in preparation for the new roadbed involves constructing some embankments, altering levels and raising protective stoneworks by the lakeside. With the completion of the doubling between La Neuveville and Twann, and of that now in progress between Dietingen and Oensingen, the only remaining single-track sections of the Lausanne-Neuchâtel-Olten main line will be between Yverdon and Gorgier (12 miles) and Olten and Olten-Hammer (¼ mile).

FRANCE

Track Testing on Secondary Lines

To carry equipment for checking the distance between the rails and the alignment of the track on secondary lines, the S.N.C.F. has designed a trailer which is hauled by a standard track trolley.

Six trailers have so far been built by the Billard Company, and others will be brought into use during 1955. The gauge is measured by a centre axle composed of two half axles, so designed that the flange on each wheel of this axle is continually in contact with the appropriate rail. The alignment of the track is checked by measuring the angle

of deviation between the two bearing axles of the trailer. The measurements are reproduced on a recording band in the track trolley, which automatically unrolls as the vehicles move along. The trailer can be hauled at 15½ m.p.h. and up to 124 miles of track have been checked daily by a single trailer.

HUNGARY

Conversions to Oil-burning

The State Railways are converting 112 locomotives from coal to crude oil fuelling to free more coal for industry.

CZECHOSLOVAKIA

Mixed-Traffic Electric Locomotives

The former Skoda works at Pilsen has designed a new Bo-Bo type of electric locomotive for use on 1,500 volt d.c. lines with gradients in the Tatra region of the Carpathian Mountains. The weight of the locomotive is approximately 79 tonnes, and with a load of 768 tonnes speeds of 71 m.p.h. can be attained on the level and 37 m.p.h. on a 1 in 125 gradient; the locomotive has a maximum speed of 75 m.p.h. The locomotive has a one hour power rating of 3,260 h.p.

POLAND

Progress of Electrification

Rapid progress is being made with the electrification of the Warsaw-Katowice line, and it is hoped that electrically-hauled passenger trains will be operating between Warsaw and Lodz before the end of the year. Freight trains hauled by electric locomotives should be in operation between Warsaw and Piotrków by early 1955, and electrification of the whole Warsaw-Katowice line should be complete by the end of that year; the 197-mile journey will then be scheduled to be covered by express trains in 3½ hr. In the north of Poland the existing electrified line between Gdansk and Zoppot is being extended to Gdynia.

Publications Received

Förderung des Modernen Verkehrs.—This book, with text written by Mr. Oskar Welti, has been issued by the Schweizerische Industrie-Gesellschaft (SIG), of Neuhausen am Rheinfall, Switzerland, in connection with its centenary, which occurred last year. It traces the rolling stock history of this, the oldest Swiss carriage and wagon works, and after the strictly historical section, in which old double-deckers, early bogie coaches and saloon cars are illustrated, there is a strong section on modern technical developments in all-steel lightweight stock, electric trains, and the so-called "torsion bar" bogie used in 330 passenger coaches in Switzerland. The firm has now delivered over 25,000 railway carriages, wagons,

and electric railcars or trains; but its railway production is equalled by its construction of machine tools, trolley trucks, small arms and other material.

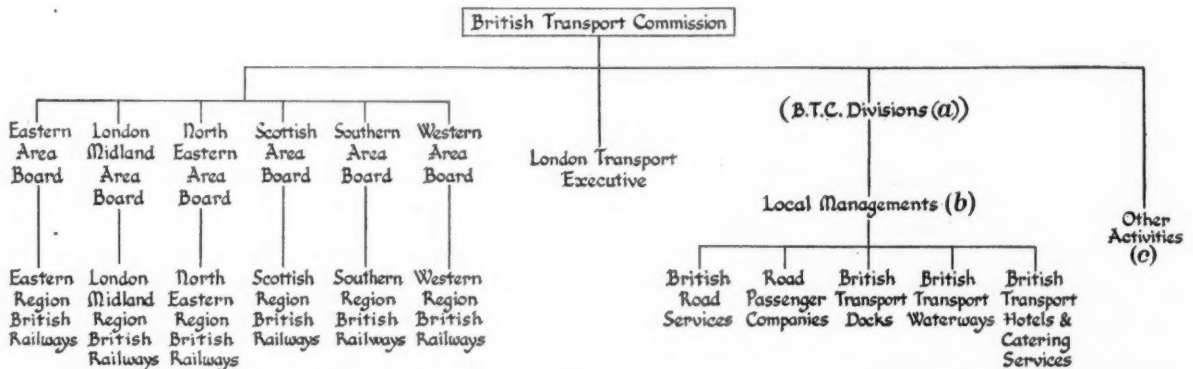
Lattice Shell.—An illustrated brochure issued by Scaffolding (Great Britain) Limited, Mitcham, Surrey. 8 pp. 13 in. × 9 in. The Lattice Shell type of roofing consists of a triangulated tubular steel network or continuous surface layer of single or double curvature, the bending of this layer causing direct tension and compression in all its members in three dimensions and great strength in all directions. This principle was developed by the Romans and perfected later in the vaulted roofs of Gothic buildings, that at Salisbury cathedral being a good example. Lattice Shell is a rapid and economic method

of providing roofing in clear spans of 30-80 ft., without trusses or even tie-rods; it is uneconomical for spans smaller than 30 ft., but it can be used in cantilevers up to half-span length. Its principal advantages are adaptability (a) in design for various forms of cladding such as (1) whole or part glazing, (2) light reinforced concrete, (3) corrugated asbestos, and (4) waterproofing supported by boarding; and (b) in the selection of position for the daylighting anywhere on the surface. Lattice Shell may be in the form of single- or double-barrel curved roofing, in domed, saw-tooth north-light, or corrugated section shells. Comparative weights and approximate costs with different kinds of cladding are quoted, and a noteworthy feature of the brochure is its clear illustrations.

Organisation of British Transport Commission

Diagrams illustrating the new organisation in force from January 1, 1955, described on the opposite page

A: BRITISH TRANSPORT COMMISSION OUTLINE ORGANISATION



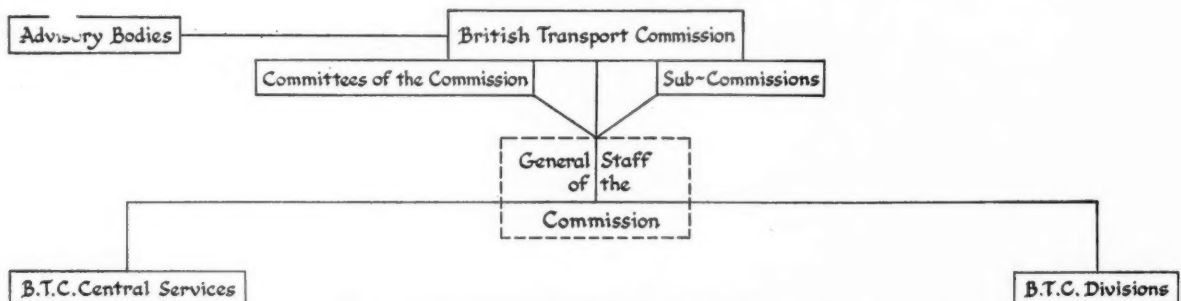
Notes.—(a) Headquarters of these Divisions are, for convenience, grouped round the headquarters of the British Transport Commission.

(b) The territorial organisation of the local managements, which is the equivalent of the Regional organisation of British Railways, is not shown for reasons of space.

(c) These cover a wide variety of activities. They are not in the same category as the Boards, Executive, and Divisions directly under the Commission, and differ very considerably from each other.

Diagram A.—Relationship of the British Transport Commission headquarters to the Area Boards, British Railways Regions, London Transport Executive, and other Divisions and activities

B: HEADQUARTERS ORGANISATION OF THE COMMISSION

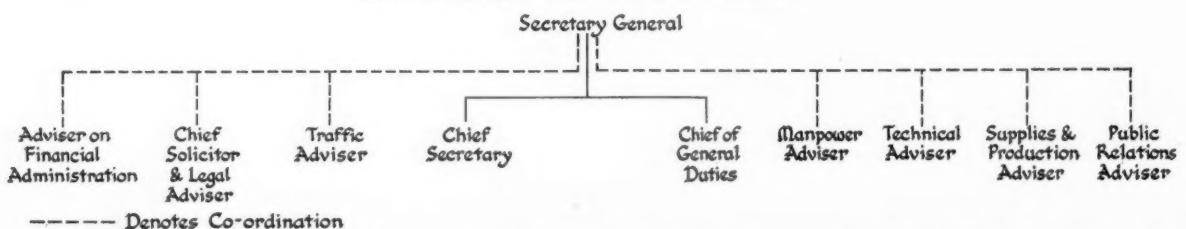


Notes.—1. British Transport Commission Headquarters consists of the Members of the Commission (its Committees and Sub-Commissions) and the staff co-ordinated by the Secretary General.

2. The Headquarters of the Divisions and Central Services are grouped round B.T.C. Headquarters so that co-ordination between them may be made easier and their staff may be readily available to work in with the General Staff of the Commission.

Diagram B.—Structure of Commission headquarters, showing responsibility of the General Staff

C: GENERAL STAFF OF THE COMMISSION



----- Denotes Co-ordination

Diagram C.—Relationships of the Chief Secretary, Chief of General Duties, and the seven Advisers with the Secretary General of the Commission

Organisation of British Transport Commission

New scheme from January 1, 1955 to replace interim organisation

SINCE the approval by Parliament of the reorganisation scheme for railways embodied in the British Transport Commission (Organisation) Scheme Order, 1954, which provides for the introduction of Area Boards, it is now stated by the Commission to be possible to effect a further reorganisation and some reduction in size of the Commission headquarters, and at the same time to introduce certain other changes thought to be desirable. Among these are the change of title of Chief Regional Managers of the Regions of British Railways to General Managers, and the separation of docks management from that of waterways.

The new organisation will supersede the interim one in force since October 1, 1953, when the former Executives, except the London Transport Executive, were abolished, and will operate from January 1, 1955. So far as the public is concerned, it is announced, there will be no change or interruption in the course of business, nor in the continuity of the various services provided by the Commission.

The following summary of the new organisation has been supplied by the Commission.

Reduction in Staff

The British Transport Commission, it is stated, is a policy-making body, controlling a large and complex undertaking. In revising the organisation, the principles followed are therefore to leave management to the Commission's subordinate organisations, to keep the organisation for control clear and simple, and to restrict the number of bodies and people with whom the Commission normally deals direct.

In pursuit of these principles, the revised organisation has been planned to arrange the work of the Members of the Commission on a sensible pattern which will ensure that proper watch and control is exercised on all parts of the undertaking, and to provide the Commission with a relatively small but compact headquarters staff machine.

The new organisation is shown in diagram form in Diagrams A, B, and C on the opposite page. The Advisers and Chief Officers of the Commission with their revised titles are listed in our personal columns, on page 665. Diagram A shows the direct channels of control from the Commission: (1) through the Area Boards to the six railway Regions; (2) to the London Transport Executive; (3) to the Divisional managements of the Commission's other principal undertakings; and (4) to various other activities, such as the Pullman Car Co. Ltd. and Thos. Cook & Son Ltd. The Area Boards are stated to be so named because it is possible that later they may be concerned with other activities of the Commission besides British Railways.

Diagrams B and C depict the revised organisation of Commission headquarters. As to the work performed by Members of the Commission—apart from and to a large extent preparatory to final policy decision, if required, at formal meetings of the full Commission—much of this will be carried out by Committees and Sub-Commissions composed of Commission Members. This will simplify procedure and facilitate quick decisions.

Committees of Commission

The committees of the Commission will deal with matters relating to the whole of the Commission's activities, including: Finance, Establishment & Staff, Technical Development & Research, Works & Equipment, Property, and Stores. One committee will be the Joint Traffic Committee, which will be all Members of the Commission in committee under the chairmanship of the Chairman of the Commission. These committees will be analogous to the committees of directors appointed by the boards of the former companies.

The Sub-Commissions will consist of small groups of Members devoting special attention on behalf of the Commission to one of the Commission activities, such as Railways, Road Haulage, Road Passenger, London Transport, Shipping, Docks, Inland Waterways, and Hotels & Catering.

The Railways Sub-Commission in particular, the Commission states, will act as arbiter on day-to-day matters requiring co-ordination between the Regions, and will generally watch the performance and productivity of British Railways, drawing attention to any need for improvement which they consider necessary, either through the General Managers or—as regards anything which warrants action at Area Board level—through the Commission itself.

The advisory bodies shown in Diagram B are respectively the Research Advisory Council, and the British Transport Joint Consultative Council, both of which include members from outside the Commission.

Organisation of B.T.C. General Staff

The General Staff of the Commission, organised as shown in Diagram C, will cover the activities of the whole of the Commission undertaking, and will channel all communications from the Areas, London Transport, Divisions, and other authorities, after such co-ordination as may be required, to the appropriate Committee or Sub-Commission of the Commission. The Chief Secretary will continue to be the Secretary of the British Transport Commission for statutory purposes.

Duties of the Officers and Advisers forming the General Staff are shown in Appendix C. The Technical Adviser is concerned with all technical aspects, including civil and mechanical engineer-

ing, and the Traffic Adviser with both the commercial and operating aspects. The Advisers will work with small personal staffs.

The Divisions of the British Transport Commission will consist of British Railways, British Road Services, Road Passenger Services, British Transport Docks, British Transport Waterways, and British Transport Hotels & Catering Services. In most cases their headquarters will, for convenience, be grouped round Commission headquarters. The British Railways Division is not shown in Diagram A, as it has no statutory existence.

Management of British Railways will be decentralised to the Area Boards except for such matters as are reserved to the Commission under the railways reorganisation scheme, e.g., design, manufacture, and standards of maintenance of locomotives, rolling stock, permanent way and signalling; major questions of labour relations; general level of charges; financial control in its broader aspects; operating policies and principles; inter-Regional wagon distribution; general commercial policy and negotiations on a national basis.

British Railways Division

The function of the British Railways Division will be to implement Commission policy on these "reserved" all-line matters, and to furnish advice, co-ordinated with the Regions, on new policy in these directions and on matters affecting the railway regions as a whole.

The Division will consist of a Railway Central Staff, a General Managers' Committee, the Railway Clearing House, and the British Railways Inter-Regional Committees. The British Railways Central Staff of the Railways Division, it is stated, will be specialist and technical officers, who will be responsible, with the General Managers, for ensuring that Commission policy is carried out from the viewpoint of British Railways as a whole.

Contact in day-to-day matters, the Commission states, will be maintained between the British Railways Division and the Regional departmental officers, the General Managers being kept informed.

Each of the following Divisions will be run by a Management Board, of which the General Manager will be Chairman, members being selected from his departmental officers:—

British Road Services.

British Transport Docks.

British Transport Waterways.

The Tilling Group and the Scottish Omnibuses Group will constitute separate Divisions for the management of their respective groups of omnibus companies. The British Transport Hotels & Catering Services will be run by a General Manager. The staffs of all divisions will work closely with the General Staff.

Keeping Down Weeds and Grass on Railway Premises

Properties and application of some chemical sprays

(By a correspondent)

THE present manpower shortage in Britain has aggravated the problem of preventing the growth of, and destroying, weeds and grass on railway premises. The problem seriously affects agricultural production, as the seeds distributed from cuttings and embankments and other railway premises may adversely affect crops on adjacent agricultural land. Cutting and weeding by hand being very largely impracticable in present circumstances, much use is made of chemical sprays applied by various types of spraying machinery including, on British Railways, trains specially equipped.

The chemical used must be cheap and easy to apply, and it must control all the main weeds.

Weed-killers may be classified into two main groups: (a) non-selective, comprising materials which kill all vegetation with which they come in contact, and (b) selective, comprising materials which kill weeds only, without damage to the finer grasses.

Non-Selective Chemicals

In certain places such as the dressed surfaces, footpaths and platforms, it may be necessary to kill all weeds and grass as well. The non-selective types such as sulphuric acid, oil emulsions,

sodium arsenite, and the like can be used for this if there is no likelihood of the spray coming into contact with animals or vegetable crops. Another spray much used is made from specially selected phenols combined with a selective weed-killer. This type of spray however, still comes within the Poisons Regulations and care must be taken to avoid splashing the concentrate on the skin or on clothing. It should also not be allowed to flow in quantity into ponds or streams where fish are present or cattle drink.

For the most part however, the selective weed-killers are the more valuable. Among them are MCPA and 2,4-D. These are selective in that they kill the broad-leaved weeds and do not harm grass.

When the chemical is sprayed on to the plants it is absorbed by the foliage and translocated to all parts of the plant. The plant cells themselves are destroyed, beginning at the growing points and spreading later to the whole plant.

One of the most promising of these selective weed-killers for use on railway banks, road verges and the like is a 2,4-D preparation consisting of an acid-in-oil emulsion of the oil in water type containing 12½ acid w/v and 60 per cent oil v/v. This not only kills weeds but

checks the growth of grass. It mixes well with water and shows up well on the sprayed foliage. It is non-poisonous to men and animals, and is neither inflammable nor corrosive.

The amounts of weed-killer to be applied vary with the kind of weed; all spray manufacturers provide instructions as to the required amounts.

Maleic Hydrazide

In the control of the growth of grass, maleic hydrazide is claimed to be of great assistance. If it is sprayed on to the grass in the Spring, when the grass is about 3 in. high, growth will be brought almost to a standstill and no cutting will probably be needed for 10-14 weeks. Another spray later in the summer will carry on the inhibition of growth and do away with any cutting at all.

If maleic hydrazide is used in the correct dosages there should be little damage, if any, to grass. There is no risk of poisoning and no special precautions have to be taken in its handling.

It will also mix quite well with a 2,4-D spray such as that mentioned above, so that the whole growth of weeds and grass can be controlled with the one spray.

Brazilian Railway Development

Topographical obstacles to extensions

(By a correspondent)

ALTHOUGH more than 22,000 miles of railway have been laid in Brazil, working out at one mile per 2,400 inhabitants and 0.67 miles per 100 sq. miles of land, Minas Gerais, São Paulo and Rio Grande do Sul are the only states with a real network of lines. Large though this total may seem, it is far below the needs of a country which exceeds in area the United States of America.

Expansion has been slow, nor is the rolling stock keeping pace with the increasing traffic. It has been decided to reorganise the whole system, not so much by extending it as by improving operating and linking the lines more closely with highways, waterways and seaports. New railways are, however, being planned with a view to ensuring and extending international communications, opening up the central hinterland, and above all connecting various local railways. The task is no easy one. The size of the country, the successive plateaux and steep escarpments, and the extent of forests and land which is subject to flooding are

added complications to the task of railway planning and construction.

The roads and railways already in existence are often ill-connected, stretching inland from the coast, where the population has always tended to accumulate because of the barrier of the Serra do Mar. An example of the problems to be overcome is the Curitiba-Paranaguá line, of which an official publication says: "Through 14 tunnels, dug from solid rock, over fantastic bridges and viaducts, the line traverses the coastal mountain range at more than 2,000 ft. altitude. The trip offers the traveller thrilling views of rocky gorges seemingly bottomless chasms, towering crags and shining mountain cascades. This railroad, built as early as 1885, stands as a monument to Brazilian engineering talent . . . one of the most audacious projects in all Latin America."

International Links

The Sorocabana Railway is now embarking on an ambitious new building project designed to extend it to Ponta Pora on the Paraguayan frontier. The

region traversed has been referred to as the future granary of the world. Of almost equal significance in the Brazilian economy is the extension of the Estrada de Ferro Noroeste do Brasil into Bolivia; this line will convey the oil products extracted from the sub-Andean petroleum beds now being jointly developed by the two countries. Extensive development is also taking place on the Central Railway, the first to use Brazilian-manufactured diesel-electric locomotives; these units were built by Industrias Reunidas de Ferro e Aço S.A., for which a 59,000,000 cruzeiro loan was recently approved by the National Economic Development Bank of Brazil.

A proposal to fuse the railway and shipping administrations has been suggested to the Cabinet by the Transport Minister. It is intended in this scheme to place all Brazilian broad-gauge railways under a single administration. At a later stage, this would be extended to the other railways of the country and also to the government-owned shipping enterprises.

Station Improvements at Yarmouth South Town

Modernisation of passenger and parcels handling facilities; better working conditions for staff



General view, showing enlarged concourse and new roof

AS a part of the general policy of British Railways, Eastern Region, to improve passenger amenities, extensive works at Yarmouth South Town, which deals with London traffic via Colchester, have recently been carried out. More congenial working conditions for the staff also have been provided.

Improved Book'g Facilities

The old semi-circular ticket office, which took up much space in the booking hall, has been demolished and the

booking hall also has been extended and redecorated.

A new ticket office has been built on the south side of the booking hall adjacent to the parcels office, which has also been extended by absorbing the existing ladies' waiting room, and completely modernised.

The train departure indicator, which was at the front of the station, has been re-sited in a central position on the west wall of the booking hall, facing incoming passengers.

To allow for the free movement of passengers during busy periods, the circulating area has been increased by setting back the barrier. This has involved filling in the track area absorbed and covering with a new concrete surface.

New Wing

An entirely new wing has been added to the north-west side of the station. On the ground floor, this contains a combined waiting and refreshment room, with kitchen, and a new ladies' waiting room can be divided into two separate rooms, if required by means of folding and sliding doors. The first floor of the new building contains rooms for the use of the staff.

Concourse and Platform Roofing

A new roof has been built over the station concourse and new platform awnings have been provided. The brickwork of the station buildings has been cleaned, both externally and within the concourse; a new canopy has been constructed at the station entrance; and the whole of the buildings have been repainted throughout.

Lighting

New electric lighting, in accordance with modern standards, has been installed throughout the station with a better arrangement of posters.

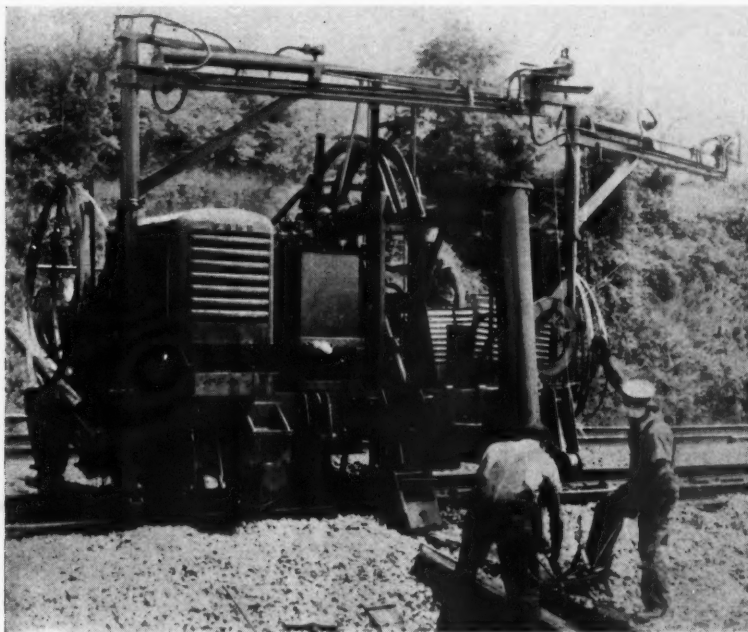
Work is now in progress on the remodelling of the station forecourt so as to provide improved parking facilities for road vehicles.



(Left) New booking hall, with re-sited departure indicator; (right) interior of new ticket office

Mechanical Replacement of Sleepers

*Old sleeper withdrawn, ballast cleared,
and new sleeper placed in 30 sec.*



TieMaster in operation, showing two cranes

TO save time and reduce labour and costs in sleeper renewals, a machine known as the TieMaster has been designed and produced in the U.S.A. It is track-mounted and can be operated without fouling traffic on adjacent tracks. Its primary functions are to remove old sleepers and place new ones in position in the track after clearing away sufficient ballast for this purpose. The actual changing of the sleepers is stated to occupy only 30 sec., and requires only one operator and two labourers.

The essential part of the machine is a flexible chain ram which scrapes out

the bed for the new sleeper as it pushes out the old one.

The sequence of operation after the spikes in the immediate vicinity have been drawn is: (1) to spot the chain ram opposite the sleeper to be replaced; (2) clamp the machine to the track; (3) lift the rails with the machine on them clear of the soleplates by means of two hydraulic lifting jacks; (4) lower the ram roller guide track over the old sleeper; (5) push out the old sleeper, simultaneously clearing the ballast for bedding the new sleeper; (6) attach the new sleeper to the ram by means of a hook; (7) withdraw the ram, pulling the

new sleeper with it into place square with the rails; and (8) release the ram, roller guide track, jacks and sleepers ready to move to the next sleeper.

One of the labourers drives the hook into the new sleeper and attaches it to the ram, removing the hook after the new sleeper is in place; the hook is returned from the side of the machine where it is removed to the other side where it is required for attaching to the next sleeper by means of a specially-provided chute. The other labourer places the new sleepers ready for changing, and disposes of the old sleepers.

For this purpose the machine may be equipped with two cranes as shown in the illustration, with which serviceable released sleepers can be loaded into tip-wagons, where they are lashed into bundles and dumped along the track for loading. They can also be used for placing the new sleepers in position.

Power and Equipment

The TieMaster has either a petrol or diesel engine driving three interchangeable hydraulic pumps. Its equipment includes a plough for removing ballast from the ends of the sleepers to enable the ram head to engage the sleepers. In addition to power-jacks, there are transverse set-off wheels, hydraulic brakes and other running equipment and safety devices.

It is stated that if the old sleepers are loaded and lashed in bundles, the rate of changing a sleeper is doubled, namely, one a minute. In fact, one machine has changed over 40,000 sleepers at this average rate. It is also claimed that its use reduces the cost of sleeper renewal to one-quarter that of any other method. The TieMaster has also been used for pushing in sleepers without raising the track.

The machine is being produced by the Railway Maintenance Corporation, of Pittsburgh.

BRITISH STANDARD FOR STEEL COMPRESSION PIPE FITTINGS.—A new British Standard, B.S. 2051: part 3: 1954, which covers steel compression fittings for use with pipes made of steel and other suitable materials for a wide range of engineering purposes has been issued. It applies to two ranges of fittings, namely, (i) for use with pipes having fractional outside diameters, $\frac{1}{4}$ in. to $1\frac{1}{2}$ in. inclusive; (ii) for use with pipes designated by their nominal bores, $\frac{1}{4}$ in. to 1 in. inclusive. This standard does not attempt the complete dimensional standardisation of these fittings since the variety in the designs and methods of production already established by the various manufacturers make any such attempt impracticable. It does, however, lay down such dimensions and requirements as are essential to ensure satisfactory installation and performance. This standard includes

a number of general requirements relating to materials, design, construction and workmanship; it specifies a hydraulic test and a test for porosity and also gives temperature and pressure ratings for these fittings. Copies of this standard, price 3s. 6d., may be obtained from the Sales Branch, British Standards House, 2, Park Street, London, W.1.

WELDING ANTI-SPATTER PAINT.—A new anti-spatter paint known as Kleenarc has been produced by the Arc Manufacturing Co. Ltd., of Nitshill, Glasgow. Supplied in powder form, it is mixed with water or methylated spirit to a creamy consistency and applied to the work surfaces with a small paint brush. The application of Kleenarc to surfaces to be welded provides a protective skin which prevents spatter and slag particles from sticking to the

work, and because it assists ionisation, stabilises the arc. It is also a flux in itself, is non-toxic, non-corrosive, non-fuming and non-irritant. It is particularly useful for protecting bronze, stainless steel, and other machined steel surfaces and welding jigs from spatter accumulations, and after the welding operation can be quickly removed from the work by means of an ordinary wire brush.

HUNGARIAN LOCOMOTIVE EXPORTS.—The Mávág Works, Hungary, recently exported five locomotives to North Korea in one week. It is now at work on an order from the Soviet Union. The average wage of Mávág workers has risen by £3 a month through reorganisation under a new manager. The average wage in October was £39 a month, compared with £36 in July.

Train Describers between Euston and Camden, L.M.R.

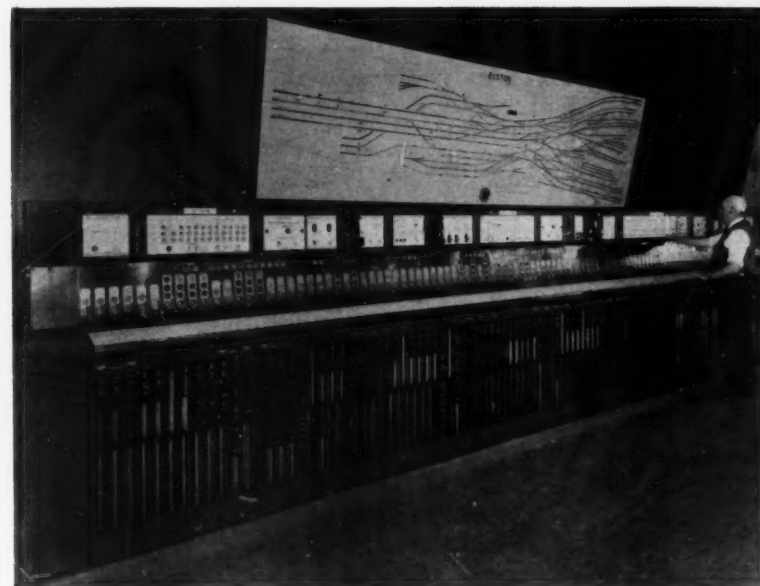
Automatic equipment with special features to meet terminal working

EARLIER this year simplified train describers which had been in use since the opening by British Railways, London Midland Region, of the new Euston-Camden signalling, were replaced by a system with manual transmission and automatic clearing which includes some unique features peculiar to the working of the Euston terminus.

The system operates between Camden No. 1 box and Euston, separate instruments being provided for the up and down fast and slow lines. Repeat receiver indicators are also provided in the arrival inspector's office at Euston and a separate instrument has been added to show up to 10 engines stored on the up engine line.

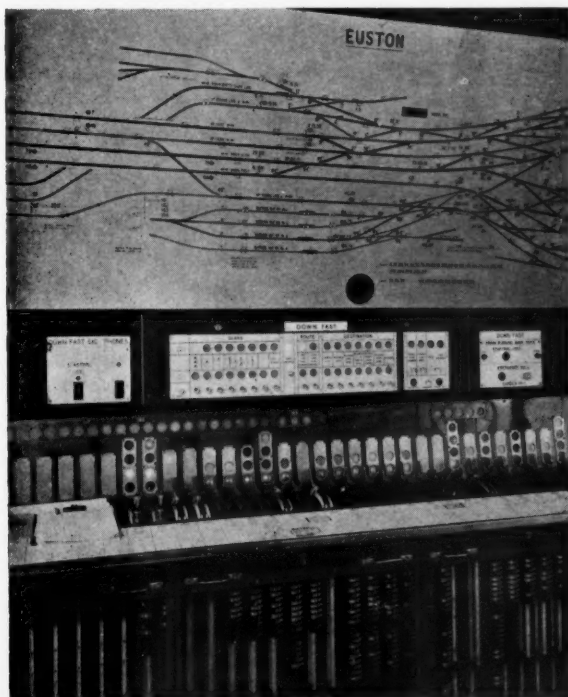
Up Traffic

For the up lines it has been necessary only to describe each train with a single composite description, such as express passenger, local passenger, and so on; 11 descriptions are provided for the fast and 12 for the slow line. So that the Euston signalman may be advised of approaching trains as soon as possible, the Camden signalman sets up and transmits the description of each train immediately after it has been belled to him. A few minutes later, when the train has reached Kilburn, Camden sends a follow-up, "passing Kilburn" indication on his instrument,

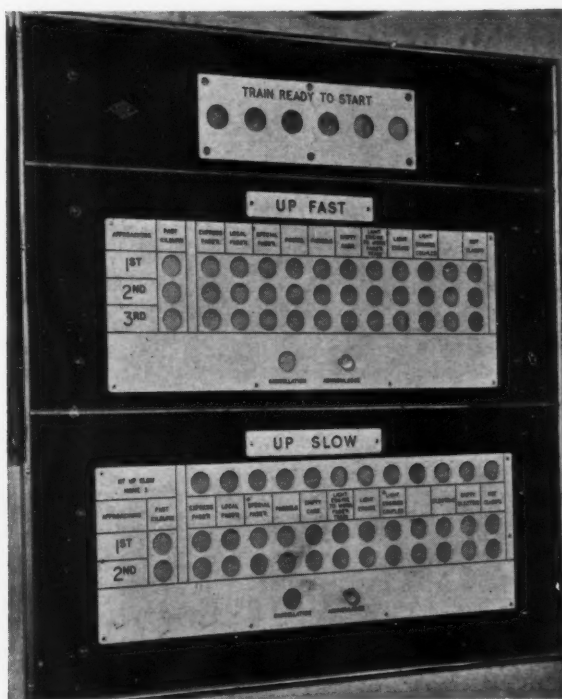


Euston box, showing the train describer instruments, etc., on instrument sheet above the interlocking frame

which shows up with the description as a dual indication on the Euston receiver. This novel feature keeps Euston advised of the progress of each train and enables the signalman there to permit shunting for the longest time possible.



Close-up of the down fast transmitter in Euston box which operates to Camden No. 1



Repeat receivers for the up fast and slow lines mounted in the arrival inspector's office at Euston

sible without causing delays to trains. The up slow line at Euston has a junction for switching to the up engine line at Points 48 (see diagram in our December 19, 1952, issue); therefore, when a train is in section approaching these junction points, its description is shown in the first or second "in Section" levels of the describer.

Engine Describer

If it passes the junction on the straight it is automatically transferred to an "arrived" level at the top of the instrument, but engines, empty stock, and any unclassified trains taking the junction points to the up engine line have their description automatically transferred to the next "arrived" column on a separate engine describer which has a capacity for 10 separate engines of the like. The up fast receiver displays up to three trains approaching Euston, and displays on all receiving instruments are cleared off automatically, that is, as the station platforms are approached.

Repeat receiving instruments for both the fast and slow lines are provided in the arrival inspector's office on the approach to the station platforms. This is to enable the station staff to be ready in good time to meet incoming trains as may be necessary.

Down Traffic

For the down line out of Euston it has been necessary to provide more information on each train. Provision is made for sending the class, route,

and destination in appropriate combination. As it is desirable to tell Camden whether or not a train leaves with a banking engine, the describers have the novel feature of providing for a special banking engine indication to follow up the particulars of a train already described. Thus at Camden up to four lamp indications may be displayed in combination to describe an approaching train.

Banking Indication

This banking indication is made separate from the normal particulars of a train because the Euston signalman may not be aware of the banking engine until the train is actually passing his box. Provision is made for 10 classes on the down slow, 8 on the down fast, 7 destinations, and two routes; this last item of information instructs the Camden signalman whether he has to switch the train as it approaches his box.

The down fast and slow line receivers can each display the description of up to four trains approaching Camden No. 1 signalbox, the particulars of each train being automatically cleared off when past the box.

Undescribed Trains

If a train enters the forward section before its description has been transmitted, a "not described" lamp is illuminated on the transmitter, an alarm buzzer is sounded, and the lamp remains alight until a description has been transmitted.

An effective cancelling arrangement is provided, to enable signalmen to cancel the last description which they have sent forward should they subsequently find that this has been sent in error. Thus, for the up line, where there are duplicated instruments for the inspector, a cancel code received from Camden causes a buzzer to sound and a lamp to light in Euston box; when the signalman replies by pressing his cancel key, the indication is cancelled both from his and the inspector's instruments. This action is known to the Camden signalman by his cancel lamp being extinguished, and understanding between the Euston signalman and inspectors is maintained by a lamp being lighted on their respective instruments which is not extinguished until the inspector depresses an acknowledgment key.

Reverse Battery Impulses

Between Camden and Euston the system operates with reverse battery impulses, the total code check principle being used, and between Euston box and the inspector's instruments, codes are set up over a pattern of multiple wires. The system uses standard P.O. type relays and uniselectors, which are mounted in steel cabinets.

The equipment was designed, manufactured and installed by the Siemens & General Electric Railway Signal Co. Ltd., to the requirements of Mr. S. Williams, Signal & Telecommunications Engineer, London Midland Region.

Welding Transformer Sets

Air-cooled, with an output range of 20-190 amps.

A NEW type of welding transformer set type ACP. 190 has been developed by the Quasi-Arc Co. Ltd., Bilston. It is air-cooled, and has an output ranging from 20 to 190 amps. With an open circuit voltage of 60 V., the welding set is designed and manufactured to B.S. 638: 1954, Group X. The set can be supplied with an inbuilt 2.2 kVAr capacitor for power factor correction, and without undergear for static use.

As will be seen from the accompanying illustration, the welding set is of modern design, and readily transportable, being fitted with two small wheels at the rear and a towing handle at the opposite end, the set may also be lifted by crane by means of two lifting handles. The operator can rapidly select any of the 35 current settings for a wide range of work.

The transformer is so arranged that it may be connected to supply voltages with ranges of 190-240V. and 380-480 V. The insulation of the welding set is class "B." There are eight primary terminals mounted on the switch panel and the correct tapping for any applied voltage is obtained through a link bridging any two terminals.



Quasi-Arc portable welding set type ACP. 190, with output range of 20-190 amps.

New Welded Bodies for Six-Wheel Passenger Coaches

Obsolescent carriage stock on the German Federal Railway rebuilt to modern standards

THE German Federal Railway has begun an ambitious programme of modernisation of its older six-wheel passenger coaches. The passenger stock of the railway as a whole is of considerable age, and suffered badly from lack of maintenance during the war. Immediate replacement of some 12,000 coaches of all types is required, and about DM. 2 billion will have to be spent during the next 10 years. The recent delivery of 500 lightweight bogie coaches, described in *The Railway Gazette* for January 23, 1953, and the release of a number of bogie coaches by the occupation forces has given some relief, but the available passenger stock is not adequate, and turnround times are sometimes too short to allow normal maintenance work to be carried out. Some 4,500 coaches are needed for urban and business traffic. Efforts have been concentrated on the long-distance stock, and for slow trains and business traffic four-wheel coaches built after the first world war are still in use, together with some 15,000 six-wheel coaches which do not meet modern traffic requirements. The average age of all stock used in slow traffic is 34 years, and 4,000 coaches of the Länderbauart type have exceeded the average lifetime. The financial position of the German Federal Railway is not such that they can be replaced by modern bogie stock.

Cost of Reconditioning

To recondition a six-wheel coach, bought before 1914 for 15,000 marks, would cost from DM. 25,000 to DM. 30,000 and would entail the retention of the present shape of wooden body, which does not permit communication between coaches or even compartments. The provision of intercoach communication and a higher degree of comfort was desirable and it was therefore decided to rebuild the six-wheel stock completely as major overhaul became due. The wooden bodies are entirely dismantled in two special railway workshops. It is estimated that 10,000-12,000 underframes are worth overhaul and are capable of serving for a further 15-20 years. The underframes are forwarded on their own wheels to five workshops which have been converted to the exclusive task of rebuilding the coaches. These workshops put entirely new all-welded bodies on to the old framework at a cost of DM. 35,000 each.

Brief particulars of the rebuilt stock are:—

Length over buffers ...	13.30 m.
Length over headstocks ...	13.00 m.
Wheelbase ...	7.50 m.
Width over body panels ...	3.09 m.
Height from rail ...	4.05 m.
Seating capacity (third class) ...	62
Tare weight ...	18.7 tonnes

The former type of body has a third



A six-wheel passenger coach of the type now being rebuilt and modernised

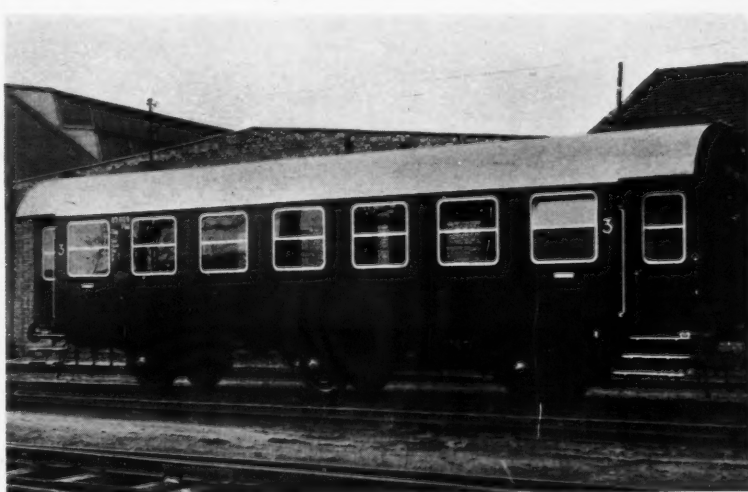
class seating capacity of 50, and a tare weight of some 19 tonnes.

The idea of replacing the wooden bodies while retaining underframes which have further useful life is not new. The Austrian Federal Railways have already rebuilt some six-wheel German stock which was left on their system when it was separated from the former Reichsbahn at the end of the war. Intercoach communication was required, and the wooden bodies were removed and replaced by new bodies with open ends. The centre axles were removed from the underframes. The bodies were built individually on each underframe and are not standardised. The German Federal Railway is stand-

ardising all parts, including the underframes, which in some cases are being extended to give the standard wheelbase of 7.5 m., the axles being moved along the frames if necessary. The centre axle is being retained to improve the smoothness of running.

Vestibule Connections

The bodies of the adjacent coaches are brought together as close as possible to utilise the full length of the underframes and part of the space above the buffers. The vestibules of the adjacent coaches are connected by front wall apertures protected by flexible rubber rolls pressed together but not fastened. All of the coaches have recessed



A third class six-wheel coach after being rebuilt with a new all-welded body

entrances at the ends. Fixed steps and wide hinged doors are fitted at each entrance.

Use of Welding

Steel shells are arc welded together in the workshops to form complete sub-assemblies. Seven of these, as well as two end portions, are required for one body. The shells are secured to the framework by continuous seam welding. Body sides and front wall outer panels are of 2 mm. sheeting cut in the workshops, and the tension is achieved by point welding at frequent intervals. The roof panels are of 1.25 mm. sheeting. Floor, walls, and roof are insulated by Sillan packings and mats of different thicknesses for protection against noise and the outside temperature. Waste sheeting, 1.25 mm. thick, is welded underneath the body to serve as an outer floor panel, and on this is laid 50 mm. Sillan matting, a felt strip, a plywood sheet 22 mm. thick, and 3 mm. linoleum.

Fibre board for inner panelling is secured to the shell fastenings after the wood cover and insulation have been placed on the outer panel. The prefabricated draught-proof windows are of half-drop type with polished aluminium framing. Curtains are fitted to all windows. There is one toilet compartment in each car, and this is fitted with white glazed basins and matt silver light metal alloy fittings. Walls and floor are finished in light-grey Spoknol

plastic. The water tank has a capacity of 300 litres. The prefabricated vestibule entrance doors are built as units. They are hinged and have double safety locks and windows narrower than those fitted in the main body of the coach.

Seats are of the back-to-back type and in the third class are arranged to seat three on one side of the gangway and two on the other. Second class coaches are arranged to seat two on each side of the gangway. The seats have steel frames and plastic-covered upholstery. All seating is prefabricated. Draught screens are fitted to seats and wall panels. The ceilings are of fibre-board painted an off-white colour. Lighting is by fluorescent tubes, the current for which is taken from a normal axle-driven dynamo, a Bosch rotary-converter, and a battery.

Internal Division

Vestibules are separated from the interior of the body by sliding doors of plywood which are fitted with windows, as is the door in the partition wall which separates the two saloons. The coaches are divided either into smoking and non-smoking sections in the ratio 4:3, or into second and third classes. The partitions carry emergency brake handles. Heating is by steam on the Mielich system, and can be adjusted individually by controls at every window-seat. There is an additional general control in the vestibules. Elec-

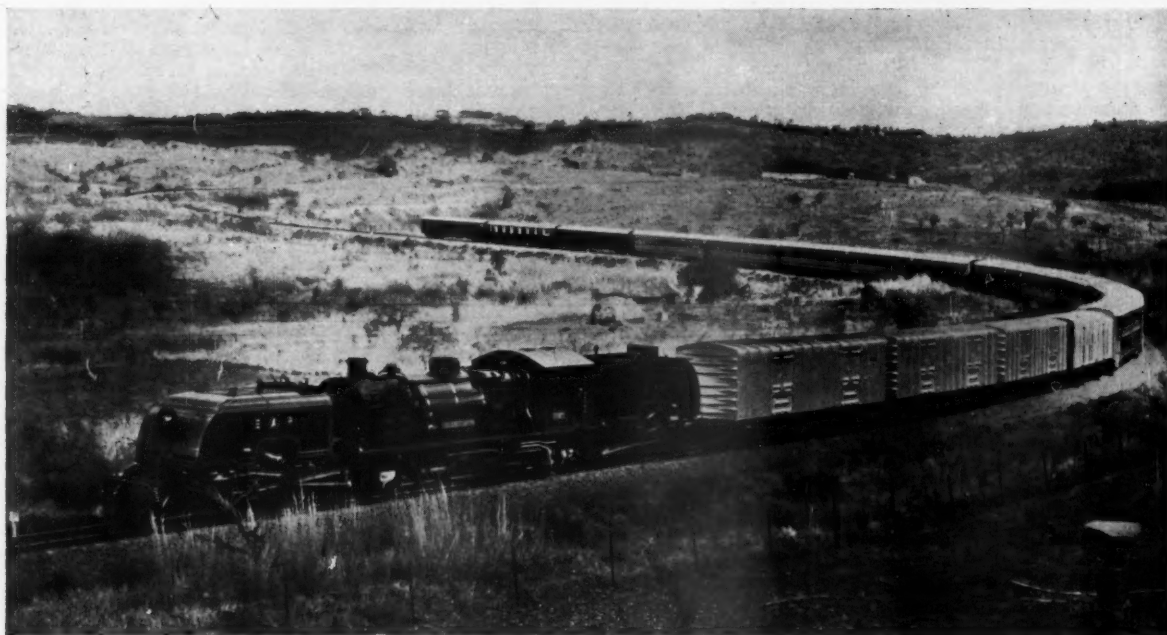
tric heating will be fitted in addition to some of the stock. Ventilation is by air shafts built into the ceilings of the vestibules, which connect the saloons with the front walls, where a grid is fitted. The shafts may be opened from inside the coaches. Shutters are fitted to one end only of each coach, as two coaches will be worked as a permanent unit and can be separated only in the workshops. The flexible rubber rolls are fitted at both ends.

Operating Conditions.

The centre gangways, inter-coach communication, and the glazing of all intermediate doors makes it possible to look through the whole train when travelling in a straight line. The combination of two coaches in a unit was decided on to achieve more favourable running conditions. They are coupled together under pressure in the workshops and are fitted with stronger buffers. The rebuilt stock may run up to 100 km.p.h. Brake mechanisms are those originally fitted.

There are special designs for a luggage van with folding doors in the centre of the lateral walls, a composite third class coach with luggage compartment, and a third class coach with a driving position for push-pull operation. The majority of the coaches will be third class or composite second and third class. Each train will provide 550 seats.

New East African Locomotive and Rolling Stock



"Sir Evelyn Baring," one of the new "60" class Beyer-Garratt locomotives of the East African Railways, hauling over the Kenya-Uganda main line a train composed of new vans of a large batch manufactured by the Metropolitan-Cammell Carriage & Wagon Co. Ltd. and Hurst, Nelson & Co. Ltd. and assembled in Africa, and new lightweight first class coaches built by the Metropolitan-Cammell Carriage & Wagon Co. Ltd.

RAILWAY NEWS SECTION

PERSONAL

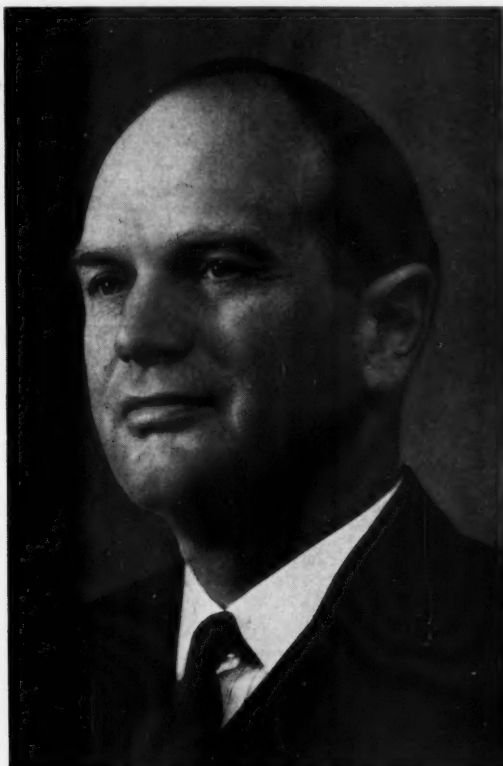
Mr. M. J. Chughtai, General Manager, North Western Railway, Pakistan, as correctly stated in the biography published in our last week's issue, will become General Manager of the Eastern Bengal Railway, Pakistan, in January, 1955, and not, as in the caption to his photograph, General Manager of the North Western Railway, Pakistan.

International Union of Railways, is an outstanding figure in the transport world, and his assistance on the Committee will help it to keep closely in touch with Continental practice.

Mr. W. G. Wakeley, Assistant (Freight) to the General Agent, Ireland, British Railways, has been appointed Assistant Agent for British Railways. The appointment takes effect from January 1, 1955.

progress of the Northern Railway during the first two formative years since regrouping of railways.

We regret to record the death, on November 27, at the age of 85, of Mr. Robert Bruce Walker, A.M.Inst.T., Traffic Manager, Midland & Great Northern Joint Railways, 1925-36. Mr. Walker was connected with that system or one of its constituents throughout his career, which began in 1883, when he



Lt.-Colonel D. H. Cameron

Appointed a part-time Member of the British Transport Commission



Mr. M. K. Kaul

Appointed General Manager of the Northern Railway, India

Lt.-Colonel Donald Hamish Cameron of Lochiel, T.D., who, as recorded in our September 3 issue, has been appointed a part-time Member of the British Transport Commission, is a Chartered Accountant and a County Councillor for Inverness-shire. He is the second Member of the Commission appointed as being conversant with the circumstances and special requirements of Scotland. He was educated at Harrow and Balliol College, Oxford and joined the Lovat Scouts in 1929, attaining the rank of Lt.-Colonel in 1945. Colonel Cameron is prominent in local government and highland affairs, and now serves in the Territorial Battalion of the Queens Own Cameron Highlanders.

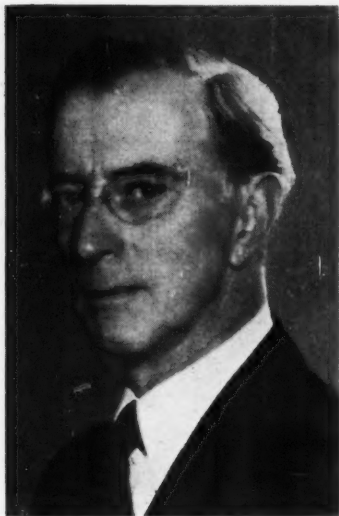
Mr. F. Q. den Hollander, President of the Netherlands Railways, has accepted an invitation to become a member of the Technical Development & Research Committee of the British Transport Commission. Mr. den Hollander, who is also President of the Office for Research and Experiments of the

Mr. M. K. Kaul, Senior Deputy General Manager, Northern Railway, India, who, as recorded in our October 29 issue, has been appointed General Manager of the Northern Railway, was born in 1905. He graduated from Government College, Lahore, in 1926, and, after a brief period with the Tata Iron & Steel Company at Jamshedpur, joined the B.B. & C.I. Railway in 1927 as Assistant Superintendent, Stores. During the war he organised railway grainshops and was Controller of Grainshops (Northern Zone) with headquarters at Ajmer, where he also served as Chairman of the Municipal Committee. In 1949 he was posted as Deputy General Manager (Staff) and was transferred the same year to the B.N. Railway as Controller of Stores. In April, 1952, he was posted Officer on Special Duty (Regrouping), Northern Railway and became its Senior Deputy General Manager in July the same year. He took an important part in the organisation of the Indian Railway Centenary Exhibition, and has been closely associated with the process of integration and

entered the General Manager's office of the then Eastern & Midland Railway as a junior clerk. After serving in various capacities in the Traffic Manager's office, including that of Personal Clerk to three Traffic Managers, he was appointed Principal Traffic Assistant to the Traffic Manager in 1919. Mr. Walker served for a period in France during the 1914-18 war. He became Traffic Manager on January 1, 1925, the position from which he retired in 1936. Mr. Walker was a Serving Brother of the Order of St. John of Jerusalem.

Mr. H. Harrison, Deputy District Manager, Bristol, for the Dunlop Rubber Co. Ltd., has been appointed District Manager, Plymouth, succeeding Mr. Dudley Parsons.

Mr. R. S. D. Bagnall has been released, at his own request, from his appointment as Home Sales Director to the Brush Electrical Engineering Co. Ltd. Mr. L. C. W. Turner, Sales Director, has taken over Mr. Bagnall's duties and responsibilities.



Mr. C. C. Horton
Assistant General Manager,
Central Uruguay Railway, 1944-54



Mr. H. C. Orchard
Appointed Assistant Civil Engineer,
Scottish Region



Mr. M. A. Crane
Appointed Technical Sales Manager,
Beyer Peacock & Co. Ltd.

Mr. C. Clarence Horton, M.Inst.T., Assistant General Manager, Central Uruguay Railway, who, as recorded in our November 5 issue, has retired, had early training in booking-office and tariff work with Thos. Cook & Son Ltd. in the Ocean Travel (and Overseas Railways) Department of that company's West End office. He joined the Traffic Department of the Central Uruguay Railway in 1906, and subsequently transferred to the Great Western of Brazil Railway, with which he held successively, over a period of twelve years, the positions of Outdoor Assistant to the Traffic Manager, Assistant Traffic Manager, and Acting Traffic Manager. His services in those capacities covered the period during which the Great Western of Brazil Railway adopted Brazilian administration, when, as one of the few British senior officers who were retained, he acquired exceptional experience in administrative reorganisation, in the ensuing adoption of new tariffs, and in the reclassification of staff. He left the company's service to become Traffic Manager of the Paraguay Central Railway, but, in 1930, he rejoined the Central Uruguay Railway as Assistant (General) to the General Manager. He was appointed Assistant General Manager in 1944. Mr. Horton was elected an Associate Member of the Institute of Transport in 1921, and became a Member in 1923. He was a member of the committee for 1944, and in the same year held office as Vice-Chairman and subsequently, for two years, Chairman, of the Argentine & River Plate Centre of the Institute. He was awarded the M.B.E. in 1946. On the nationalisation of the former British railways of Uruguay, he retained his position as Assistant General Manager of the combined system of State Railways for a period of five years, and accepted extension of his contract for a short period thereafter in order to complete important work in hand which involved an official mission to Washington as sole delegate of the Uruguayan State Railways, to negotiate a loan for an extensive programme of reconditioning of the system.

Mr. A. J. Johnson, District Commercial Superintendent, Cambridge, Eastern Region, British Railways, has been appointed District Commercial Superintendent, Stoke-on-Trent, London Midland Region.

Mr. H. C. Orchard, A.M.I.C.E., Acting Assistant Engineer (Permanent Way), Eastern Region, who has been appointed Assistant Civil Engineer, Scottish Region, with effect from November 29, began his railway career with the Great Eastern Railway in the District Engineer's Office, Ipswich, in 1920. He subsequently served at London (Liverpool Street), Ipswich, and Boston, and, in 1937, he was appointed Junior Assistant in the Construction Office of the Engineer, Southern Area, L.N.E.R., at London (Kings Cross), becoming Senior Assistant in 1938. In 1939 he became Acting Assistant District Engineer, Boston, and, in 1943, Acting Chief Assistant (Maintenance), Southern Area, L.N.E.R., at London (Kings Cross), in which position he was confirmed in a permanent capacity in 1945. Subsequently he held appointments at Kings Cross as Chief Assistant (Permanent Way) in 1946, and Permanent Way Assistant to Engineer in 1947 (re-designated Assistant to Civil Engineer (Permanent Way), Eastern Region, British Railways, in 1948). In 1950 Mr. Orchard was appointed District Engineer, Stratford, and, in 1953, he assumed the position he now vacates.

Mr. Maurice A. Crane, M.I.Mech.E., M.I.Loco.E., London Manager of Beyer Peacock & Co. Ltd., who, as recorded in our December 3 issue, has been appointed Technical Sales Manager of the company as from May 1, 1954, obtained early training with the Great Western Railway at Swindon, technical training at Swindon Technical College, and further experience in the Testing Department and Drawing Office. Mr. Crane joined the Nigerian Railway in 1928 as Draughtsman & Technical Instructor in charge of the Technical Training Institute, subsequently holding the positions of Chief Draughtsman, Research Officer, Acting Works Superintendent, and District Running Superintendent with that system. He later became Senior Locomotive Superintendent, Gold Coast Railway, in which capacity he was responsible for the running department of the railway and the mechanical operation of Takoradi Harbour. He was a volunteer in the European Defence Force attached to the West African Frontier Force in Nigeria and the Gold Coast. He joined Beyer Peacock & Co. Ltd. in 1942 as Assistant to

the Sales Director and, in the course of his duties, he has visited railways in many parts of the world. He was among the first to explore by motor coach the West to East Sahara route, and he has visited most countries in Europe, all countries in Africa, India, Ceylon, the Far East, Australia, New Zealand, the United States and South America, and has circumnavigated the globe in both directions. In addition to the company's normal business, Mr. Crane has been closely associated during the past twelve years with the production of films and books, including the L.M.A. Handbook and the New South Wales film which was shown earlier this year on the occasion of the commencement of the company's Centenary Year. He is a Member of Council of the Institution of Locomotive Engineers. Mr. Crane became London Manager of Beyer Peacock & Co. Ltd. on January 1 this year, and, on the retirement of Mr. W. Cyril Williams on April 30 last, he took charge of the London Office of the company and of the Publicity & Technical Sales Department.

The following members of the staff of the Civil Engineer, Western Region, British Railways, were elected to the Institution of Civil Engineers in October last:—

Member

Mr. H. G. Lakeman, B.Sc. (Hons.), A.C.G.I., A.M.I.C.E., District Engineer, Bristol.

Associate Members

Mr. G. E. Peart, B.Sc. (Hons.), Senior Engineering Assistant (Work Study), Civil Engineer's Office, Paddington.

Mr. R. J. Coon, Graduate, Engineering Assistant, District Engineer's Office, Plymouth.

Mr. N. N. Barnett, Graduate, Technical Assistant, Civil Engineer's Office, Paddington.

Mr. G. F. Bissell, Head Inspector in the Birmingham area for Messrs. Livesey & Henderson, Consulting Engineers, is retiring on December 31. Mr. Bissell, who was born on December 28, 1883, served his apprenticeship at Tangyes Limited, and later served for five years with the Birmingham Railway Carriage & Wagon Co. Ltd. After appointments with various industrial undertakings he joined Messrs. Livesey &

Henderson in May, 1919, when he was appointed Assistant District Inspector for the Birmingham Area. He became District Inspector on November 1, 1921, and has therefore been in charge of the Birmingham Area for 33 years. During this period, many contracts comprising every type of carriage stock, wagons, refrigerator vans, dynamometer cars, railcars, bridgework, steel constructional work, steam locomotives, diesel-electric locomotives, machine tools of every description, rail fastenings and general stores, have been dealt with; during the 1939-45 war, a great deal of work was done for the Admiralty and other departments.

Mr. A. J. White, Assistant Chief Regional Officer, Eastern Region, British Railways, has been appointed Assistant Chief Regional Manager, Eastern Region.

We regret to record the death, at the age of 87, of Sir Joseph Davies, K.B.E., formerly a Director of the Cambrian Railways, and Chairman of the Totton & Fawley Light Railway.

Mr. Ivor L. Jones has been appointed General Agent for the Canadian Pacific Railway in Rotterdam.

Mr. B. J. Roden, Export & Import Representative, Canadian National Railways has been appointed Assistant Foreign Freight Agent of the System. Mr. Roden, who was born in Market Drayton, Shropshire, brings to his new position more than 30 years of railway experience. He joined the company as a clerk-stenographer in the Foreign Freight Office, in 1923, and, advancing through numerous successive positions, was appointed Export and Import Representative in 1946.

Mr. Paul I. Birchard, Vice-President & General Manager of the Enterprise Engine & Machine Company, of San Francisco, California, has been appointed Vice-President & General Manager of the Le Roi Division of the Westinghouse Air Brake Company.

Lord Coleraine, P.C., has been appointed Chairman of the new Central Transport Consultative Committee for Great Britain, which begins its term of office on January 1, 1955.

The following have been appointed to serve as additional members of Transport Users Consultative Committees:—

Mrs. M. Williams-Wynne, Wales and Monmouthshire.

Mrs. D. M. Windey, East Midland Area.
Alderman Mrs. E. Oldfield, J.P., M.B., London Area.

Mrs. P. Davidson, South Western Area.
Mrs. K. Jackman, Yorkshire Area.
Mr. O. A. Radley, Yorkshire Area.

Mr. G. W. Wells and Mr. P. F. Benton Jones have been appointed to the board of the United Steel Companies, Limited.

The following appointments have been announced by Metropolitan-Vickers Electrical Co. Ltd.:—

Mr. J. V. Bigg, Assistant Chief Engineer, Condenser Engineering Department, Mr. J. A. Walker, Assistant Manager, Sheffield Office; and Mr. K. Greenwood, District Engineer, Erection Department, Glasgow.

Mr. Thomas Gillett, Joint Managing Director, and Mr. S. W. Marsh, Chief Engineer, Andre Rubber Co. Ltd., have returned from a tour of South and East Africa. One purpose of the visit was to introduce the Andre-Neidhart rubber suspension to rail and road transport authorities.

Mr. J. G. Jackson has been appointed Manager of the Glasgow branch of Enfield Cables Limited. Mr. F. R. Mackenzie has been appointed Manager of the company's Newcastle branch, Mr. W. F. Lawrence, Manager of the Southampton branch, and Mr. H. Dennis, A.M.I.E.E., Manager of the Manchester branch.

Mr. G. H. Kendall, formerly an Assistant Chief Engineer of the Dyestuffs Division of Imperial Chemical Industries Limited, has

joined the board of Henry Hargreaves & Sons Ltd. Mr. Harry Hargreaves has been elected Chairman, and Mr. H. Gordon Hargreaves, Managing Director of the company. Mrs. A. A. Currie, Mr. J. Bleakley and Mr. G. Murphy, have been elected Directors.

We regret to record the death, at the age of 55, of Mr. C. D. Law, Chief Staff Training & Appointments Officer, Dunlop Rubber Co. Ltd.

BRITISH TRANSPORT COMMISSION

Details of the changes in the organisation of the British Transport Commission resulting from the approval by Parliament of the Railways Reorganisation Scheme are given elsewhere in this issue.

The following new appointments or changes of nomenclature have been made by the British Transport Commission as from January 1, 1955:—

General Staff of the Commission

Secretary General	General Sir Daril Watson
Chief Secretary	S. B. Taylor
Chief of General Duties	A. J. Pearson
Adviser on Financial Administration	Andrew Black
Chief Solicitor & Legal Adviser	M. H. B. Gilmour
Traffic Adviser	David Blee
Manpower Adviser	W. P. Allen
Technical Adviser	J. Ratter
Supplies & Production Adviser	To be appointed
Public Relations Adviser	J. H. Brebner

British Transport Commission Divisions

British Railways Central Staff

Chief Commercial Officer	To be appointed
Chief Operating & Motive Power Officer	R. F. Harvey
Chief Establishment & Staff Officer	F. Gilbert
Chief Mechanical Engineer	R. C. Bond
Chief Electrical Engineer	S. B. Warder
Chief Civil Engineer	To be appointed
Chief Carriage & Wagon Engineering Officer	A. E. Robson
Chief Signal Engineering Officer	J. H. Fraser
Chief Financial Officer	V. Radford*
Director of Research	T. M. Herbert

* Also Chief of Budgets, Costing & Audit, B.T.C.

British Road Services

General Manager & Chairman of Management Board	Major-General G. N. Russell
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British Transport Docks

General Manager & Chairman of Management Board	Sir Robert Letch
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British Transport Waterways

General Manager & Chairman of Management Board	To be appointed
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British Transport Hotels & Catering Services

General Manager	F. G. Hole
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Central Services of the Commission

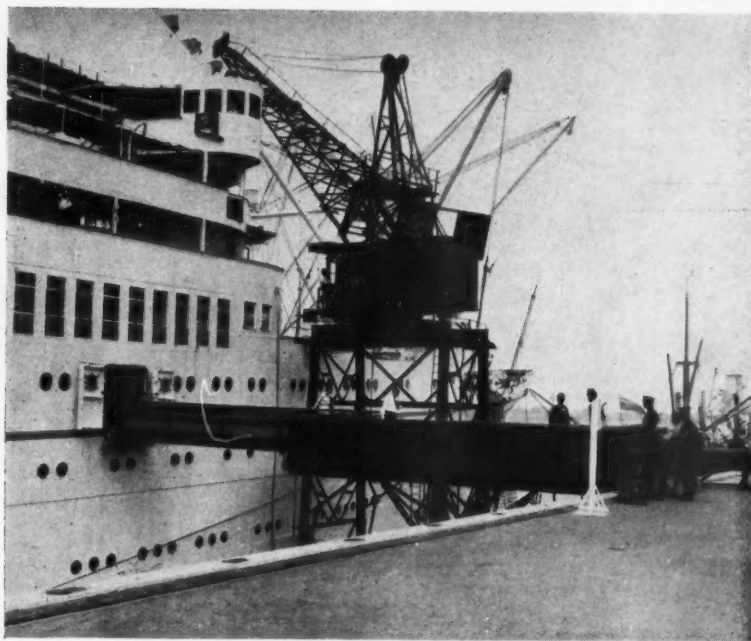
Chief Estate & Rating Surveyor	W. S. Barnes, succeeding A. Endicott, who is retiring
Chief Police Officer	W. B. Richards
Chief Stores Officer	A. Forbes Smith
Chief Paper & Printing Officer	J. O'Neill

Railway Regions

General Manager, Eastern Region	C. K. Bird
General Manager, London Midland Region	J. W. Watkins
General Manager, North Eastern Region	H. A. Short
General Manager, Scottish Region	T. F. Cameron
General Manager, Southern Region	C. P. Hopkins
General Manager, Western Region	K. W. C. Grand

New Passenger Terminal at Takoradi Harbour, Gold Coast Railway

Double-storey structure with direct undercover gangway connection to ship



Travelling gantry, and telescopic gangway affording direct passage from ship to terminal building

On August 24 the Gold Coast Railway opened a new passenger terminal at Takoradi Harbour. The first vessel to be moored alongside the terminal was the *Aureol*, the flagship of the Elder Dempster fleet, an appropriate choice as Commodore J. J. Smith, Commodore of Elder Dempster

Lines, was completing his final round trip before retirement after 40 years service on the west coast of Africa. The occasion was marked by a luncheon party held on board the *Aureol* at which were present Sir William Halcrow; Messrs. A. R. Boakye, Secretary to the Minister of Com-

munications, and A. E. A. Ofori Attah, Minister of Communications, Gold Coast; Commodore J. J. Smith, Mr. W. H. Salkield, General Manager, Gold Coast Railway, and other principal representatives of the Gold Coast Railway & Takoradi Harbour and shipping and commercial representatives in Takoradi.

The terminal forms a part of the harbour extensions, which have been under construction since 1949 and are estimated to cost in all, some £5,500,000. The extensions are now almost complete. The terminal is the first floor of a double storey transit shed at No. 4 quay which was built as an extension to the main wharf. This operation meant the reclamation of an area of water, varying from 30 ft. to 40 ft. in depth, and the transit shed itself has been built on reinforced concrete piles 45 ft. in length. The double storey transit shed is 400 ft. by 100 ft. and although the final costs have not yet been completed, it is expected that the cost of the shed will be approximately £200,000.

Telescopic Gangway

A travelling gantry and a telescopic gangway enable passengers to transfer in comfort from the upper deck of main line passenger vessels to the canopy of the first floor. Passenger baggage is transferred from the ship's hold to the canopy by Harbour Authority crane for examination by the Customs. The passenger accommodation comprises a large Customs examination hall, a well-furnished waiting room with buffet bar, post offices, immigration office, lavatories, medical inspection rooms, and Customs search rooms. After examination by the Customs, baggage is transferred to the ground floor by electric baggage lifts to the loading platform, with ample access for road transport.

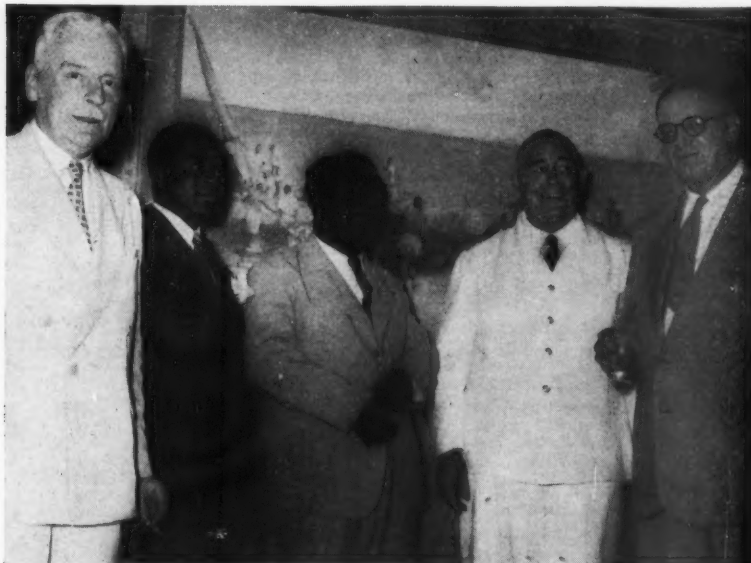
The consulting engineers for this undertaking were Messrs. Rendel, Palmer & Tritton, and the contractors, Taylor Woodrow (West Africa) Limited.

Institution of Railway Signal Engineers

At a meeting of the Institution of Railway Signal Engineers in London on November 17, with the President, Mr. J. H. Fraser, in the chair, an informal discussion took place on "The Repeating and Proving of Railway Signal Lamps."

The discussion was opened by Mr. E. E. Pierce who, in a short paper on oil-lit signal lamps, described recent improvements such as better optical performance; angle back lights; improvements in pyroscopes; the desirability of other methods of detecting heat and light as alternatives to the pyroscope principle; improvements in needle instruments; advances in the design of repeater contact boxes; the elimination of lubrication; and fixed or adjustable contacts. To illustrate his remarks, he displayed some examples of various types of signal lamps and indicators.

Mr. J. F. H. Tyler referred to the trouble experienced in the Western Region with the formation of the gum deposit in lamps with pyroscopes. They had now got out some lamps with the pyrometer hinged inside the case, so that on opening the lid and undoing a wing nut, it was possible to get at the back and remove the gum. The type of pyrometer that had its contacts enclosed in a glass tube was very compact, but with the disadvantage that it did not disconnect at a high enough temperature. Regarding combined indicators,



On board the "Aureol" before the inaugural luncheon; (left to right) Sir William Halcrow, Messrs. A. R. Boakye and A. E. A. Ofori Attah, Commodore J. J. Smith, and Mr. W. H. Salkield

he wondered whether, the lamp being so important, they should normally use the "light out" principle, as a disconnected wire could give a "wrong side" failure.

Mr. D. H. Minett said that the basis of the pyroscope problem was the burner, which should be designed to give the maximum amount of light and the minimum amount of heat.

Electric Signal Lamps

Mr. J. H. Devine opened the discussion on electric signal lamp repeating and proving by reading a short paper on the need for repeating and proving, controlled and automatic and semi-automatic signals, multi-lens and searchlight signals, series relay, lamp proving relay, long—and short—section proving, means of keeping traffic moving during lamp failures, marker lights, and double-filament lamps (double pole and triple pole).

Mr. B. Reynolds said that London Transport did not do much in the way of lamp proving, as generally it relied on train-stops, but in cases where tracks were shared with main line trains, red light proving was installed. He described the circuit used and also the plotting technique for development of the transformer and relay.

Mr. J. H. Currey maintained that any standby lamp must be at least of the same intensity as the main one. Reference had been made to single-filament and double-filament lamps; he asked for information on the difference in cost between the two types of lamp.

Mr. B. H. Grose referred to an improved circuit which was a help in proving that a lamp was not emitting light. As to the proving of double-filament lamps, sometimes a back lamp and a side light were called for as well, and in those conditions it was very hard to prove what was alight.

A vote of thanks was proposed by the President to Mr. Pierce and Mr. Devine for introducing the discussion.

Utrecht Railway Museum Rehoused

On November 5 Mr. F. Q. Den Hollander, President of the Netherlands Railways, attended the opening of the railway museum at Utrecht, housed in the former Maliebaan Station. The historical section of the museum was opened to the public in these new premises in November, 1953, but conversion of the remainder of the building to a museum had still to be completed.

Half the complete collection is historical and half modern. Present-day signalling practice is represented by a model of a station where all movements can be carried out from a panel apparatus in conjunction with the full-size, three-speed, colour-light signal, with flashing-light level crossing warning equipment. Other models are a lifting bridge, permanent way construction, rolling stock, and overhead equipment.

Mr. Den Hollander, who was received by Mr. G. J. Schelling, Chairman of the Museum Advisory Board, gave an address in which he related how, when the contents of the former museum were stored for safe keeping, he had formed the idea that the disused Maliebaan Station would form an excellent museum. Mr. Den Hollander then offered to the Mayoress of Utrecht, who declared the museum open, a hand-coloured engraving of Utrecht Central Station as first built.

Parliamentary Notes

Methods of Working the Railways

Lord Polwarth, in moving a reply to the Speech from the Throne on November 30, said it was particularly welcome to find in the Queen's Speech that the borrowing powers of the B.T.C. were to be increased, presumably so that the railways could be modernised and re-equipped. The railways, he sometimes felt, tended to cling to methods acquired in their Victorian childhood. Capital re-equipment was the first requirement, but must be accompanied by a radical change of thought on the methods of working.

Questions in Parliament

Helicopter Stations

Mr. Norman Dodds (Dartford—Lab.) on November 10 asked what investigations had taken place in recent months into the suitability of utilising the roofs of London's railway stations as possible helicopter stations.

Mr. John Boyd-Carpenter (Minister of Transport & Civil Aviation): I have recently completed an investigation into the practicability of rooftop sites for helicopters over Waterloo and Cannon Street Stations and at a site near St. Pancras. The last is unsuitable because of surrounding buildings; at the other two stations roof top platforms could be constructed at very considerable cost, but it is doubtful if they would be large enough for helicopter traffic hoped for in the future.

Road Transport Sales

The Minister of Transport & Civil Aviation was asked on November 10 by Mr. Ivor Owen Thomas (The Wrekin—Lab.) what was the total amount received to date by the B.T.C. by the sale of property, other than road motor vehicles, disposed of under the provisions of the Transport Act, 1953.

Mr. John Boyd-Carpenter wrote in reply: The total amount received up to September 11 for the sale of such property otherwise than in transport units is about £130,000. It is not possible to give a figure for property sold with motor vehicles in transport units since the purchase price is for the unit as a whole.

Mr. Thomas next asked what was the total number of road goods motor vehicles sold to date by the B.T.C. under the provisions of the Transport Act, 1953, and the total amount received by the sale of such vehicles.

Mr. John Boyd-Carpenter stated in a written reply: The number of motor vehicles so far disposed of is 10,009. The purchase prices of the units totalled about £12,900,000. This includes sums paid for rights obtained by purchasers and for property other than motor vehicles included in units.

Mr. Douglas Jay (Battersea N.—Lab.) on November 10 asked the Minister of Transport & Civil Aviation whether, in view of the capital loss of £20,000,000 sustained by the B.T.C. from the sale of road vehicles, he would take steps to amend the Transport Act, 1953, so as to terminate the sale of road vehicles and other publicly-owned property.

Mr. John Boyd-Carpenter replied in the negative.

Railway Charges Scheme

Mr. John MacLeod (Ross & Cromarty—Nat. Lib. Con.) asked in the House of Commons on November 10 what was the

present time limit fixed under Section 76 of the Transport Act, 1947, for the submission of a railway charges scheme by the B.T.C. to the Transport Tribunal.

Mr. John Boyd-Carpenter, Minister of Transport & Civil Aviation, replied: The period at present allowed expires on August 6, 1955. The B.T.C. have practically completed the draft of a Rail Merchandise Charges Scheme and are about to consult with interests concerned, including Scottish interests. It will afterwards be submitted to the Tribunal.

Cables Over Railway Tracks

Commander J. F. W. Maitland (Horncastle—C.) on November 17 asked if the Minister of Transport & Civil Aviation would give a general direction to the B.T.C. to expedite the procedure for granting permission for high-tension electric cables to cross railway tracks.

Mr. John Boyd-Carpenter replied: This is a matter of day-to-day management for the B.T.C. I have no reason to believe that there is generally any avoidable delay.

Sale of Transport Units

The Minister of Transport & Civil Aviation was asked by Mr. Ernest Davies (Enfield E.—Lab.) on November 17 how many transport units including more than 50 vehicles he had given his approval to in accordance with Section 3(3) of the Transport Act, 1953; and how many such units had been sold.

Mr. John Boyd-Carpenter replied: I have given approval in 15 cases. One of these units has been sold. Two others were withdrawn and are being disposed of as companies under Section 5 of the Act. Decisions on tenders for another seven have not yet been taken.

Mr. Ernest Davies next asked the total number of transport units and the total number of vehicles sold to date.

Mr. Boyd-Carpenter: 3,122 and 10,009, respectively.

Lincoln Level Crossing

Mr. Geoffrey de Freitas (Lincoln—Lab.) on November 19 asked what requests the Minister of Transport & Civil Aviation had received from the Lincoln City Council and from the B.T.C. urging him to agree to eliminate the level crossing at the Durham Ox in the city of Lincoln; and whether he would make a statement.

Mr. John Boyd-Carpenter, in a written reply, stated: The Chairman of the B.T.C. has mentioned to me the anxiety that local residents have expressed to him on this subject. I have well in mind the desirability of approving a scheme to bridge this level crossing when the design has been settled and funds can be made available.

Railway Electrification: Thanet

Mr. W. R. Rees-Davies (Isle of Thanet—C.) on November 24 asked whether the Minister of Transport & Civil Aviation would give the completion of the scheme for railway electrification of Thanet the first priority for railway electrification in the Southern Region; what work was now proceeding upon the completion of the plans and costings; when such plans and costings would be completed for constructional work to start; and whether he would take steps to ensure the early completion of this scheme.

Mr. John Boyd-Carpenter, in a written reply, stated: These are matters for the B.T.C. which hopes to submit to me its plan for re-equipment and modernisation

of the railways, including further electrification schemes, before the year ends.

Stockport Canal

Mr. W. H. Oldfield (Manchester Gorton—Lab.) on November 24 inquired when the Minister of Transport & Civil Aviation expected the final report of the Canal Commission in relation to that part of the Stockport Canal which runs through the Gorton Division of Manchester.

Mr. John Boyd-Carpenter, in a written reply, stated: There is no such body as the Canal Commission. If what Mr. Oldfield has in mind is the review by a Board of Survey appointed by the B.T.C. to review the canals belonging to the Commission, the answer is that they hope to receive it shortly.

Staff & Labour Matters

Railway Wages

Events in connection with the demands which the National Union of Railwaymen has made for improved rates of pay for railway conciliation grades (other than footplate staff) have reached a critical stage and some branches have threatened strike action if the claims are not met quickly.

Last week the N.U.R. asked for immediate talks with the British Transport Commission and it is understood that the union now seeks to secure an increase in pay for its members which will lift their present wage rates to 15 per cent above those in operation prior to December, 6, 1953. In effect this means a return to the former claim which was lodged in July, 1953.

On December 6, union leaders met the Chairman of the Commission, to whom they put their case for a larger increase than that accorded in the recent agreement which they had repudiated under pressure from their members. Later, a meeting of the union executive decided that as its approach to the Chairman of the Commission had not opened out the prospect of a satisfactory solution they would seek a meeting with the Minister of Transport & Aviation, Mr. John Boyd-Carpenter.

A union spokesman is understood to have said, "In the absence of an undertaking from the Commission to consider any new claim favourably, we feel we should warn the Minister that a dangerous situation is being created on the railways." It is further understood that the union considers that if some of the profit made by the State from the railways in 1940-47 were returned to the industry it would create an atmosphere in which a settlement of fair claims of the railwaymen could be met and would also help the Commission in modernising the railways. This would not imply an annual subsidy.

It was announced on December 7 that the Minister of Transport & Aviation had received an approach from the N.U.R. and that arrangements had been made for him to meet the union leaders on December 13.

London Transport Busmen

The London Transport Executive has rejected demands from the London Busmen's Committee for increases in the basic rates of pay of drivers, conductors, garage and depot maintenance and cleaning staffs ranging from 25s. per week for a London bus driver to 39s. per week for a Country Service conductor. The cost of the application is estimated to be more than £5,000,000 per annum.

In earlier meetings London Transport agreed with the union that the basic rates

of pay of drivers and conductors should be increased. The union has accepted that in present circumstances some overtime is necessary and a scheme for rostered overtime has been submitted to the unions.

The assistance of the conciliation department of the Ministry of Labour has been requested.

Contracts & Tenders

The Vacuum Oil Co. Ltd., has placed an order for 28 3 ft. 6 in.-gauge tank wagons with M. & W. Grazebrook Limited. Twelve will be used in Nigeria and 16 on the Gold Coast.

A contract for the construction of a sea wall and repairs to a concrete apron between New Cleve and Cleethorpes has been let by British Railways, Eastern Region, to Clugstone Cawood Limited of Scunthorpe. A removable timber flood barrier is also to be provided near Suggits Lane level crossing. Work is to begin at once.

Shri N. K. Ghose, Officer-in-Charge, Lignite Investigation at Neyveli, India, has told the United Kingdom Trade Commissioner at Madras that as the Pilot Excavation Project is approaching its end, he would be interested, in view of future developments, in receiving specifications, approximate cost, delivery period and working details from United Kingdom manufacturers of:—

- (i) Large-size shovels and draglines with buckets above 12 cu. yd. capacity
- (ii) Ropeway excavators (or slackline excavators) as used for stock piling of minerals, to handle 10,000 to 20,000 tons a day over an area of 1,000 to 2,000 ft.
- (iii) Conveyors to carry 2,000 to 10,000 tons a day to distances varying from half-a-mile to four miles
- (iv) Electric locomotives to carry a rake of loads weighing 200 to 500 tons
- (v) Diesel locomotives of above capacity for broad gauge
- (vi) Diesel locos. 5 to 10 tons capacity for smaller gauge
- (vii) Large capacity (10 to 25 tons) side tipping wagons (b.g.)
- (viii) Loading equipment to handle 100 to 500 cu. yd. an hour
- (ix) Earth-moving equipment, both crawler type and tyre type
- (x) Electric haulage gears to haul 50- to 100-ton load

Firms interested in this enquiry should write direct to Shri N. K. Ghose, Officer-in-Charge, Lignite Investigation, Neyveli, P.O. It would be appreciated if, at the same time, they would inform the United Kingdom Trade Commissioner, 6, Armenian Street, Madras 1, of the action taken.

The Special Register Information Service, Export Services Branch, Board of Trade, reported last month a call for 40 goods and passenger vans by the Victorian Railways (see our November 26 issue). It has now been informed that the Victorian Railways Administrative Office will supply sets of documents, at a cost of £5 a set, to Australian firms only. United Kingdom manufacturers wishing to tender for these requirements will have to obtain the specifications through the offices of their Australian agents. The closing date for the receipt of bids is now amended to February 9, 1955.

The Special Register Information Service, Export Services Branch, Board of Trade, reports a call by the Director General of Supplies & Disposals, Government of India, for mechanical railway signalling equipment. (Tender No. SRIA/18663-E/V). Tenders should reach the Director General of Supplies & Disposals, Shahjahan Road, New Delhi, by December 21.

A set of tender documents including conditions of contract and drawings, is available for loan to United Kingdom firms in order of application to the Branch, Lacon House, Theobalds Road, W.C.1. Local representation is essential.

The Director General of Supplies & Disposals, New Delhi, invites tenders for:—

- (a) 200 intermediate pieces for body side support (Schlieren drawing SWS 506000) 400 felt rings (Schlieren drawing SWS 513887)
- (b) 1,280 axlebox bodies (m.g.) (four lots)
- (c) 400 lower bearing housings (Schlieren drawing 515098)
- (d) 200 casings for short case buffers

Tenders are to be submitted to the Director General of Industries & Supplies, Shahjahan Road (Section SRI), New Delhi, quoting references (a) SRI/16949-E/I; (b) SRI/17080-E/I; (c) SRI/16955-E/I; (d) SRI/17112-E/III. They will be received up to 10 a.m. on (a) December 17; (b), (c) December 21; (d) December 22.

Forms of tender are only available for purchase in India from the Deputy Director General (Supplies), Directorate General of Supplies & Disposals, New Delhi; Director of Supplies & Disposals, Bombay or Calcutta; Deputy Director of Supplies & Disposals, Madras.

If the date for the receipt of tenders does allow sufficient time for tenderers to obtain tender forms from India, they may submit their quotation to India in their own letter form or by telegram so long as all essential particulars are given and provided they simultaneously apply for tender forms and return them duly completed as quickly as possible on the basis of advance quotations already submitted.

A copy of the tender form can be examined at the India Store Department on application to the "CDN" Branch and the drawings can be seen at the offices of Hodges, Bennett & Company, 59-60, Petty France, London, S.W.1, from whom copies may be obtained at a fixed price per sheet.

The Special Register Information Service, Export Services Branch, Board of Trade, reports that the South African Railways, Stores Department, have published a notice in the South African press, inviting tenders for petrol tank wagons and components. The components, in respect of which separate prices are called for, comprise:—

- (a) Steel tanks; (b) bogies; (c) bogie castings; (d) automatic couplers; (e) drawgear; (f) drawgear yokes; (g) vacuum cylinders; (h) snubbers; (i) wheels and axles; (j) springs; (k) bearings

The closing date for receipt of tenders is January 6. A deposit of £50 will be required in respect of a first set of tender documents and of £50 in respect of a first set of drawings. For subsequent sets deposits at half the rate for the first sets will be required. Individual drawings for components can be purchased for nominal amounts. The tender documents may be inspected at the Office of the High Commissioner for the Union of South Africa, Drawing Office, 3rd Floor, South Africa House, London, S.W.1.

The Special Register Information Service, Export Services Branch, Board of Trade, reports a call by the Egyptian Republic Railways for:—

(a) 20 bogies for air-conditioned coaches to E.R.R. specification No. 570. Only suppliers on Official List No. 19 are eligible to submit quotations.

(b) 1,500 tyres for passenger bogie carriages. Only suppliers on Official List No. 6 (New) are eligible to submit quotations.

Tenders should reach the office of the General Manager, Egyptian Republic Railways, Cairo Station, by (a) December 30, 1954; (b) January 15, 1955. Local representation is essential. For item (a) the specifications and conditions may be obtained at a cost of £E3 from the Mechanical Department, Saptieh, Cairo, for (b) at a cost of pt. 50 from the Stores Department, Western Wing, Cairo Station.

The Special Register Information Service, Export Services Branch, Board of Trade, reports that the Egyptian Republic Railways are calling for tenders for the supply of an 80 ft. locomotive turntable to E.R.R. specification No. 751 for installation at Assiut, Upper Egypt. Only suppliers on the approved list of suppliers may submit quotations. Tenders should reach the Office of the General Manager, Egyptian Republic Railways, Cairo Station, by January 17. Local representation is essential. A copy of the specification may be obtained from the Mechanical Department, Saptieh, Cairo, at a cost of £E1.

CLAIMS PREVENTION: PARCELS.—The importance of correct labeling and adequate packing as aids to the prevention of claims for loss or damage to parcels was urged by Mr. E. H. Burn, Deputy Parcels Agent, British Railways, Manchester, in an address to the Manchester centre of the Institute of Traffic Administration recently. The railways were doing all they could to reduce losses, he said, and had introduced a system whereby vulnerable items were conveyed in sealed hampers or vans. This system was particularly useful for cross-town transfer traffic. Common sense was the best guide to packing, Mr. Burn said, but British Railways laid down specific regulations for the packing of certain traffics.

VACUUM OIL CO. LTD.—Since 1950, the ordinary share capital of Vacuum Oil Co. Ltd. has been held equally by Socony-Vacuum Oil Co. Inc., New York, and the Powell Duffryn group. An agreement has now been signed under which Socony-Vacuum Oil Co. Inc. will acquire the 6,276,179 ordinary shares of £1 each now held by the Powell Duffryn group, which will receive £7,250,000 5 per cent loan stock of the company, guaranteed as to principal and interest by Socony-Vacuum Oil Co. Inc. In a statement to the members, Sir Herbert Merrett, Chairman of Powell Duffryn Limited, explains that the Coryton refinery has taken much longer to construct than was originally anticipated and has also cost much more. The market for petroleum products has become more competitive and lower profit margins and greatly increased demands for working capital are expected. The resulting low profits, and the ploughing back of profits into the business are a short-term problem which Socony-Vacuum Oil Co. Ltd., with its world-wide interests, can face, but the original investment of Powell Duffryn Limited was made with the object of a return to shareholders.

Notes and News

Institute of Directors.—In November 495 new members were enrolled by the Institute of Directors. Total membership now exceeds 12,000.

Assistant Civil Engineer (Junior) Required.

—Applications are invited for the post of Assistant Civil Engineer (Junior) required by consulting Engineers for work on railway location in East Africa. See Official Notices on page 672.

Vacancies for Draughtsmen.—Because of an extensive development programme, Ruston & Hornsby Limited, Sheaf Iron Works, Lincoln, require a number of additional draughtsmen immediately. See Official Notices on page 672.

Careers in Railway Signalling.—London Transport has vacancies in its Signal Department for suitable young men. Candidates will be engaged as trainees and given a three months' training, followed by a qualifying examination. For further details see Official Notices on page 672.

Assistant Metallurgist Required.—Applications are invited for the post of assistant metallurgist, required for the works metallurgical laboratory at the Locomotive and Carriage Works, British Railways, Western Region, Swindon, Wilts. See Official Notices on page 672.

Transport Manager Required.—A transport manager is required for an organisation in the London area to organise and co-ordinate transport facilities involving modern fleet of vehicles operating a distribution system throughout the country. See Official Notices on page 672.

Chargehands (Boilermaker) Required.—Applications are invited for chargehands (boilermaker), between 25 and 35 years of age, required by the East African Railways & Harbours Administration, for one tour of 40 to 48 months with prospect of permanency. See Official Notices on page 672.

Accident to Football Special Train in Belgium.—A special train conveying supporters who had attended the England-Germany football match was derailed on December 2 near Louvain, Belgium. At least 19 persons were killed and 40 injured. The accident occurred at a point where single-line working was in force because of reconstruction of the bridge over the River Dyle.

Diesel Engine Users' Association.—The annual general meeting of the Diesel Engine Users' Association will be held at Caxton Hall, London, S.W.1, on December 16 at 2.30 p.m. Among those nominated by the General Committee to serve during 1955 are Mr. F. J. Mayor (President) and Mr. Julian S. Tritton (Hon. Secretary). At the meeting the report on heavy oil engine working costs and performance in 1953 will be presented. There will be an informal discussion on "Operating Problems," contained in the report, and on "Some Faults in Existing Fuel Injection Systems," to be introduced by Mr. A. F. Evans.

Railway Students' Association Dinner.—The annual dinner of the Railway Students' Association, London School of Economics & Political Science, was held at the London Transport (South Kensington) Club on December 1. A reception by Sir Reginald

Wilson, President of the Association and Member of the British Transport Commission, preceded the dinner. The toast "The Ladies and Visitors" was proposed by Sir Reginald Wilson and responded to by Sir Gilmour Jenkins, President of the Institute of Transport and Permanent Secretary, Ministry of Transport & Civil Aviation. The dinner was followed by a dance.

India Store Department.—From December 15, the address of the India Store Department will be Government Building, Bromyard Avenue, Acton, W.3, telephone Acorn 5353.

London Midland Region S. & T.E. Department Dinner.—The headquarters staff of the London Midland Region Signal & Telecommunications Engineers department held their annual dinner and dance at the Century Hotel, Wembley, on November 18. The principal guests were Mr. J. W. Watkins, Chief Regional Manager, and Mr. J. H. Fraser, Chief Officer, Signal & Telecommunications, British Transport Commission. The chair was taken by Mr. S. Williams, Signal & Telecommunications Engineer, London Midland Region.

Institute of Transport: Humberside Section Annual Dinner.—The annual dinner of the Humberside Section of the Institute of Transport took place at the Guildhall, Hull, on Tuesday, November 23. The President, Sir Gilmour Jenkins responded to the toast of "The Institute of Transport" proposed by the Lord Mayor of Hull, Councillor H. W. Jackson. Mr. J. H. Nicholson, Vice-Chancellor of the University of Hull, responded to the toast "Our Guests," proposed by Mr. R. Worfolk, Chairman of the Humberside Section, who presided.

Diesel Engine Manufacture in Argentina.—The Argentine Government has issued a decree which approves the recently concluded contract between the Empresa Nacional de Transportes and the Italian Fiat group under which Fiat has undertaken to establish a plant in Argentina to manufacture diesel engines for locomotives, ocean and river vessels, and industrial power generating equipment. The preamble of this decree recalls that one of the objectives of the second five-year plan is the achievement of self-sufficiency in diesel engines for installation in locally-built locomotives.

Christmas Train Services.—Train services in England and Wales over the Christmas holiday period will be based on modified Sunday services from Christmas Day to Boxing Day, December 27. On Christmas Eve there will be an augmented weekday service and a weekday service with alterations and additions will be operated on December 27. On Southern Region suburban lines there will be an hourly service until the early afternoon on Christmas Day and a two-hourly service after that. A similar service will operate in the morning on the intervening Sunday and on Boxing Day, but the afternoon service will be half-hourly. In Scotland, normal services will be operated with additional trains to and from England. Cheap day return tickets, early morning return tickets, shift workers' tickets, and commercial travellers' weekend tickets will be issued as usual.

Londonderry-Sirabane U.T.A. Line Closure.—No objections have been received by the Ministry of Commerce in Belfast to the Ulster Transport Authority's

proposal to close from January 1 the narrow-gauge section between London-derry and Strabane.

Special Trains for England-Germany Football Match.—The largest movement in day excursion traffic from the Continent for any single event since the war was carried out by the Southern Region in connection with the international football match between England and Germany at Wembley on December 1. Some 10,000 supporters travelled from all parts of Germany to Britain, 8,000 of them by special rail and boat services. Eleven special trains were run between Dover and Victoria on November 30 and December 1.

Raising of Tracks between Hillingdon and Uxbridge, London Transport.—Some 4,000 tons of granite and limestone have been dumped on to the bed of the track between Hillingdon and Uxbridge on the Metropolitan Line of the London Transport. A quarter-of-a-mile of line in cutting was threatened by subsidence in a 30-ft. slope caused by the wet summer and recent heavy rains. The permanent way was removed and the rocks were laid by hand during a possession which lasted throughout last weekend. The tracks are now 4 ft. higher than before. The cutting slope has, been lessened in height to reduce pressure.

Protection of Threads.—To prevent the seizing and galling of threaded connections subjected to prolonged exposure and extreme heat a material known as Thred-Gard has been developed by Crane Packing Limited, of Slough. The material is a non-drip and non-hardening substance which is applied to threads of bolts, studs, or plugs before fitting. It is stated that wrench torque is greatly reduced, and fittings can be drawn up to a greater degree of tightness. Seizing and galling is prevented at temperatures up to 1,200°F. Other applications for this material include wire-drawing dies, broaching and spinning tools, lathe centres, and so on. Thred-Gard is supplied in $\frac{1}{2}$, one pint, and quart tins. An illustrated leaflet is available on application to the manufacturers.

Conveyance of Hundred-Foot Girder.—An out-of-gauge load, a girder 100 ft. 6 in. long, 7 ft. 2 in. wide, 3 ft. high, weighing over 23 tons, has been conveyed by rail from Motherwell, Scottish Region, to Tilbury, Eastern Region, where it was delivered to the British Electricity Authority

siding for use in a new power station. Much adjustment of train working over the route taken is stated to have been necessary.

B.T.C. Nominee Companies.—The British Transport Commission has formed two nominee companies, Transport Nominees and Britavel Nominees, both with capitals of £100, to hold its shares in various undertakings. This step has been taken to conform with administrative procedure laid down by the Companies Act. In the past individuals have acted as nominees in such cases.

Liquid Soap Dispenser.—A. G. Wild & Co. Ltd., of Sheffield, has developed a new type of soap dispensing unit which is said to be tamper proof. The valve is operated by hand pressure, and at each depression releases an adequate quantity but avoids waste. The valve, which has a projection of $4\frac{1}{2}$ in., is made from stainless steel and is tamper proof. Added security is afforded by having one control supply tank which can be placed out of reach in a cupboard or behind a partition.

London Midland Region Block Signalling Classes.—Fifteen prizewinners who gained awards in the block signalling examinations during 1953-54 received their prizes recently from Mr. S. G. Hearn, Operating Superintendent, British Railways, London Midland Region. Over 2,000 members of the L.M.R. staff attended the courses, which are held annually at centres throughout the Region to afford all grades the opportunity to study block signalling and improve their efficiency.

British Standard Glossary for Toothed Gearing.—The need for a glossary of terms and notation for toothed gearing has been apparent for some years. The British Standard Glossary B.S. 2519:1954, now published, gives definitions for terms commonly used in all applications of toothed gearing. It also gives a standard notation which includes the symbols required for use in the theory and practice of gear engineering. The terms and definitions are grouped in eight sections and there is a complete index. The Committee have endeavoured to include all the terms required in practical use. One section gives definitions for all the common types of errors in gear cutting. The section giving geometrical definitions has been made as short and as concise as possible. It is intended that in future gear standards will

include only the special terms and symbols which are applicable to that particular type of gearing which forms their subject. Copies may be obtained from the British Standards Institution, Sales Branch, 2, Park Street, London, W.1, price 6s.

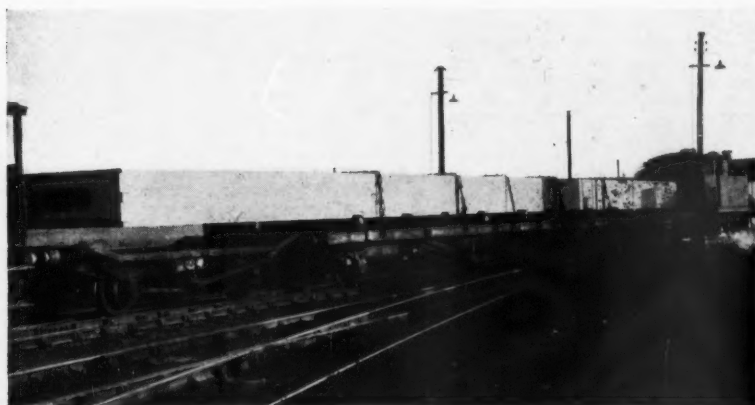
Northern Ireland Section, Institute of Transport.—At the monthly meeting of the Northern Ireland Section of the Institute of Transport in Belfast on November 8 the Chairman of the Section, Mr. J. Mackle, was in the chair. A paper entitled "Road Safety" was presented by Mr. G. B. Gray, General Agent, British Transport Commission, Dublin, and President of the Safety First Association of Ireland.

Forced Ventilation in Harecastle Canal Tunnel.—A system of forced ventilation has been introduced by British Waterways in Harecastle Tunnel, on the Trent & Mersey Canal, to enable diesel-operated craft to pass through the tunnel under their own power and without the nuisance arising from exhaust gases. Previously, the craft had to be towed through by an electric tug hauling on an underwater wire rope. The tunnel runs parallel with the London Midland Region (former North Stafford) Stoke to Crewe and Manchester line.

Training School for Derby Carriage and Wagon Apprentices.—British Railways, London Midland Region, began work on December 1 on converting railway buildings in Litchurch Lane, Derby, into a fully-equipped training school for apprentices in the Carriage & Wagon Works. One of the floors of the building has been used since April, 1951, for apprentice training, but this was only an interim scheme for the training of youths in certain trades. When the present work is completed, improved facilities will be provided for the training of carriage and wagon apprentices in all trades. The school will include workshops, instruction rooms and waiting room. It will be possible to train some 90 apprentices at one time.

Mazda Trunking Development.—The British Thomson-Houston Co. Ltd. has released details of Invertrunking, a new form of inverted trunking or conduiting carrying wiring and cables, lighting and other electrical fittings, which may be quickly and simply attached by means of T-bolts. It consists basically of a one-piece aluminium extrusion, which is joined by a channel section where necessary. A spring steel cover fillet completes the section when all wiring is in position; similarly, it is only necessary to remove this when alterations to the circuits or fittings are desired. Overall dimensions are: width 4 in., depth 1.11-1.16 in.; angle, tee and crossover sections are available. Invertrunking may be mounted flush on to beams or structural ceilings, or cast *in situ*, when a protective coat of bituminous paint is necessary. It can be used with plaster, either faired into a shallow cove or used with expanded metal to provide deep coves.

Turner & Newall Limited Results.—The consolidated profit for the year ended September 30, 1954, of Turner & Newall Limited and subsidiaries was £12,044,351. This compares with £11,987,945 for the previous year. Taxation amounted to £6,743,671 (£7,495,680). Provisions for taxation no longer required added £272,723 (£1,108,667). Deductions for reserves, including £1,000,000 (£1,150,000) for replacement of fixed assets, and for other items,



The 100-ft. 6-in. girder at Ripple Lane Sidings, Barking, en route from Motherwell to Tilbury

amounted to £2,362,215 (£1,674,852), leaving the balance for the year at £3,211,188 (£3,926,080). Of this, £141,649 (£606,796) is carried forward by subsidiaries and £3,069,539 (£3,319,284) to the parent company. Dividends already paid or declared take £356,584 (£202,416). A final ordinary dividend of 17½ per cent (15 per cent) is proposed, making 22½ per cent for the year (17½ per cent). General reserve receives £1,500,000 (£2,000,000), and the balance carried forward, including a balance of £1,884,769 from 1953, is £2,024,295.

Powell Duffryn Limited Preference Dividend.—The directors of Powell Duffryn Limited have announced a dividend on the £3,600,000 4½ per cent cumulative preference stock of 2½ per cent, less tax, for the six months ending December 31, 1954. Payment will be made on January 1, 1955, to holders registered at the close of business on December 1. Transfer books were closed for one day on December 2.

Head, Wrightson & Co. Ltd., Dividends.—The directors of Head, Wrightson & Co. Ltd., intend to maintain the interim dividend at 5 per cent on the capital as doubled by a proposed free scrip issue. The final dividend is expected to be at least 7½ per cent. The interim dividend for last year was followed by a final dividend of 20 per cent, making 25 per cent for the year. This is equivalent to 12½ per cent on the increased capital.

Monel Data Sheets.—A new series of data sheets is being issued by Henry Wiggin & Co. Ltd. presenting, in concise form, essential physical and mechanical data on wrought high-nickel alloys. The second in the series, dealing with Monel, a corrosion-resisting nickel-copper alloy of wide engineering application, has just been issued. Copies of this and of the first in the series, dealing with Nimonic 90 for springs, are obtainable from the Publications Department, Henry Wiggin & Company Limited, Thames House, Millbank, London, S.W.1.

Cored and Solid Solder Preforms.—Cored and solid solder preforms, such as washers, rings, and solid foils of any specified shape, are among the latest products of Enthoven Solders Limited, Upper Thames Street, London, E.C.4. Cored solder ribbon from 0.005 in. upwards, in widths from 0.125 to 2 in., together with solid solder tape and strip from 0.003 in. thick up to 0.062 in., in width, from 0.125 to 4 in. dia. are available. Details of this equipment together with information of the Superspeed electrically-operated soldering iron are given in a series of illustrated leaflets issued by the firm. Leaflets are available on request.

Thos. W. Ward Limited Report.—The group turnover for the year ended June 30, 1954, of Thos. W. Ward Limited was £30,787,000. This compared with £33,227,000 for the record year 1952-53. Trading profits, after directors' emoluments, were £1,969,772 (£1,996,411) and total income was £2,084,577 (£2,101,890). Net profits, after tax of £1,024,699 (£1,027,342) were £788,490 (£811,737). The final dividend is 10 per cent on the doubled capital, following an interim of 5 per cent on the old capital. Last year an interim of 5 per cent was paid, with a final dividend of 15 per cent; there was also an anniversary bonus of 2½ per cent, not taxable, out of capital profits. Group total assets rose

to £13,939,145 (£13,608,546), and current assets to £10,021,776 (£9,788,885). Current liabilities stood at £4,786,248 (£4,732,426). In his circulated review, the Chairman & Managing Director, Mr. H. W. Secker, says that the immediate prospects of the group are reasonably good, but increasing costs of production in wages, supplies, and services, with keener competitive conditions, may result in a narrowing of profit margins.

Aldershot & District Traction Co. Ltd.—The Aldershot & District Traction Co. Ltd. has announced an interim dividend of 2 per cent on the capital of £625,000. This is equivalent to the interim dividend of 2½ per cent declared last year on a capital of £500,000.

Acquisition by Iliffe Press of Index Publishers Limited.—Associated Iliffe Press Limited has acquired the entire share capital of Index Publishers Limited, of Dunstable. The latter company owns and publishes a number of railway timetables and the *A.B.C. Coach Guide*. It also compiles, prints, and publishes many railway and bus timetables for the London Transport Executive and other passenger transport undertakings. An important side of the business of Index Publishers is the compilation of the *London A.B.C. Railway Guide*. Mr. C. E. Wallis, Chairman of Associated Iliffe Press Limited, has been appointed Chairman of Index Publishers Limited, and Mr. C. A. Tibbett will continue as Managing Director.

Conveyance of 82-Ton Transformer.—On November 21 a transformer weighing 82 tons was conveyed by a special train of the Scottish Region from Redhouse Power Station, near Thornton (Fife), to Yoker Power Station (Clydebank). The load had a maximum height of 13 ft. 4½ in. from rail level and it was necessary to traverse it several times en route to clear tunnels and bridges. For the final shunting movement from Yoker Yard to the power station a 9-in. traverse was necessary to clear lineside structures. The vehicle used was a special transformer wagon with a capacity of 135 tons, and fitted with traversing apparatus which enabled the load to be moved a maximum of 1 ft. on either side of centre. The wagon has an overall length of 91 ft. 1 in. on four six-wheel bogies and has a tare weight of 72 tons 11 cwt.

Paint Pre-Heating Equipment.—To overcome the lack of gloss of paints when working in low temperatures, over thinning of materials, or because of the chilling effect of compressed air, the Ecco Division of the Atlas Diesel Co. Ltd., Wembley, has developed an air heater, LF 750, and a paint pre-heater FV30 which can be used with Ecco 30 or 303 spray guns, according to the compressor capacity, or the number of spray guns in use simultaneously. The air-heater is a heavily insulated and explosive proof electric heater of 750 W., into which the air from the compressor is passed at the bottom and emerges at the top at thermostatically controlled temperature ranging from 86 to 190° F. The air then passes to the air inlet of the pre-heater which consists of a honeycomb air coil. It is stated that with tests carried out with the thermostat fully advanced, the temperature at the gun nozzle is 160-170° F., while the lacquer/paint temperature, after circulation through the pre-heater is 90° F., after atomisation at a point some 4 in. from the nozzle is 110° F.

Forthcoming Meetings

Until end of year.—“Popular Carriage” Exhibition (Two centuries of carriage design for road and rail) in the Shareholders' Meeting Room, Euston Station, London, N.W.1. Weekdays 10 a.m. to 7 p.m.; Sundays 2 to 7 p.m.

December 10 (Fri.).—Institution of Railway Signal Engineers, at the Institution of Electrical Engineers, Victoria Embankment, W.C.2, at 6 p.m. Paper on “Loudspeakers in marshalling yards,” by Mr. B. W. Flexman.

December 11 (Sat.).—Permanent Way Institution, East Anglia Section, at Ipswich, at 2.15 p.m. Discussion on length marking.

December 11 (Sat.).—Stephenson Locomotive Society, North Eastern Area, in the Conservative Association Rooms, 2, Jesmond Road, Newcastle-upon-Tyne, at 6.30 p.m. Photographic competition and exhibition.

December 13 (Mon.).—Institute of Transport, in the Jarvis Hall (R.I.B.A.), 66, Portland Place, London, W.1, at 5.45 p.m. Henry Spurrier Memorial Lecture “Road haulage—a re-appraisal,” by Mr. G. W. Quick Smith.

December 14 (Tue.).—South Wales & Monmouthshire Railways & Docks Lecture & Debating Society, at the Angel Hotel, Westgate Street, Cardiff, at 6.30 p.m. Paper on “The manufacture and uses of cement,” illustrated by lantern slides, by Mr. A. M. C. Jenour, Chairman of the Aberthaw & Bristol Channel Portland Cement Co. Ltd.

December 14 (Tue.).—Institute of Transport, Irish Section, at the C.I.E. Club, Dublin, at 6.15 p.m. Paper on “Some observations on transport in the Republic of Ireland,” by Mr. John H. Scott.

December 14 (Tue.).—Institute of Transport, Yorkshire Section, at the Great Northern Hotel, Leeds, at 6.30 p.m. Paper on “Operational research,” by Mr. A. T. Wilford.

December 15 (Wed.).—Institute of Traffic Administration, Bristol Centre, at the Chamber of Commerce, Small Street, at 7.30 p.m. Paper on “Railway signalling and block systems,” by Mr. A. S. Wade.

December 15 (Wed.).—Newcomen Society, at the Institution of Mechanical Engineers, 1, Birdcage Walk, Westminster, S.W.1, at 5.30 p.m. Paper on “History of locomotive power transmissions,” by Mr. F. J. G. Haut.

December 15 (Wed.).—Permanent Way Institution, London Section, at the headquarters of the British Transport Commission, 222, Marylebone Road, N.W.1, at 6.30 p.m. Paper on “Paint, past and present,” by Mr. A. W. Todd.

December 15 (Wed.).—British Railways, Southern Region, Lecture & Debating Society, at the Chapter House, St. Thomas' Street, London, S.E.1, at 5.45 for 6 p.m. Talk on “The Manchester, Sheffield and Wath Electrification,” illustrated by lantern slides, by Mr. E. Claxton.

December 15 (Wed.).—Institution of Electrical Engineers, at Savoy Place, London, W.C.2, at 5.30 p.m. Paper on “Short-circuit forces on turbo-generator end windings,” by Mr. J. B. Young and Mr. D. H. Tompsett.

December 16 (Thu.).—British Railways, Western Region, London Lecture &

Debating Society, in the Headquarters Staff Dining Club, Bishop's Bridge Road, Paddington, W.2, at 5.45 p.m. Paper on "Unilevers—from raw materials to finished products," illustrated by lantern slides, by Mr. J. F. Knight, Unilever Limited.

December 16 (Thu.).—Diesel Engine Users Association, at Caxton Hall, Westminster, London, S.W.1, at 2.30 p.m. Annual general meeting—"Report on heavy oil engine working costs and performance, 1953," and an informal discussion on "operating problems."

December 16 (Thu.).—Institute of Transport, Essex Group, at the Shire Hall, Chelmsford. Paper on "Motive power on British Railways," by Mr. A. J. R. Winchester.

December 16 (Thu.).—Institute of Transport, South Western Section, at the Imperial Hotel, Exeter, at 12.45 for 1 p.m. Annual luncheon and visit of Sir Reginald Wilson.

December 17 (Fri.).—Institute of Transport, Swindon Group, at the Corporation Transport Offices, Swindon, at 7.15 p.m. Paper on "Transport in industry," by Mr. B. R. Jones.

December 17 (Fri.).—Institute of Transport, Tees-side Section, at the Cleveland Scientific & Technical Institute, Middlesbrough, at 7 p.m. Paper on "What is an 'unprofitable' service," by Mr. G. J. Ponsonby.

December 18 (Sat.).—Stephenson Locomotive Society, Leeds Centre, at the Y.M.C.A., Albion Place, at 6.30 p.m. Talk on "Locomotives past and future," by Mr. P. Rosewarne.

December 20 (Mon.).—Institute of Transport, at 80, Portland Place, London, W.1, at 5.45 p.m. Annual general meeting of corporate members.

December 21 (Tue.).—Stephenson Locomotive Society, Midland Area, at 71, Edmund Street, Birmingham, at 7.15 p.m. Christmas party and social evening.

Railway Stock Market

There has been a rally in stock markets, but generally the volume of business was somewhat lower than in recent weeks because of a tendency for buyers to adopt a waiting attitude until early in the New Year. On the other hand, there is no marked disposition to sell and take the substantial profits represented by the very big gains in market values this year. Sentiment, however, has remained unsettled by the suggestion that there are signs of inflation becoming a danger and that it may be necessary in due course to raise the bank rate. No early change in the bank rate is expected. In fact, it may prove unnecessary, if sterling strengthens in world markets. Already there are signs of the latter. There seems no doubt that company results for the current year will show profits well above those for 1953, and higher dividends seem in prospect because of this. It is time, of course, that these prospects may already be rather fully discounted in share prices, but there is no doubt the latter could go a good deal higher if markets are strong and buoyant in the first quarter of next year.

Foreign and overseas rails attracted only moderate attention again. Antofagasta preference have remained prominent up to 57½ in the belief that payment of dividend arrears is likely to be accelerated next year. The ordinary stock was active around 11½, while the 5 per cent (Bolivia) debentures

showed firmness at 75½ on suggestions that part of the windfall the company expects from a subsidiary might be used in redeeming these debentures.

Another feature has been buying of Costa Rica debentures at higher prices, the first debentures moving up from 67½ to 69½ and the second from 57½ to 60. A little demand developed for United of Havana stocks which strengthened, the second income stock to 36 and the consolidated stock to 5½.

After their recent reaction, Dorada ordinary stock attracted some attention on a revival of vague talk of take-over possibilities. The price however at 74 failed to recover. Business at 31½ was recorded in Chilean Northern 5 per cent first debentures, while in other directions, Guayaquil & Quito first bonds changed hands at 57½.

Taltal Railways shares marked 14s. 7½d. and Nitrate Rails shares were 18s. 9d., while business around 3s. 3d. took place in San Paulo units. Mexican Central "A" debentures were 73.

Canadian Pacific remained active around \$55½ with the 4 per cent preference stock £74½ and the 4 per cent debentures £89½. White Pass at \$36½ failed to keep best levels; the convertible debentures were £126½.

Midland of Western Australia was again 22½ with the income stock 42. Emu Bay 5 per cent irredeemable debentures were quoted at 44½. Elsewhere, Nyasaland 3½ per cent debentures were 79½ and the shares held their recent improved level of 6s. 3d. In Indian stocks, Barsi changed hands down to 83.

Recorded dealings in shares of road transport companies were few and far between, but the shares remained firmly held as usual, because of their good dividend records. Southdown were 34s. 6d., West Riding 33s. and Lancashire Transport 61s. B.E.T. deferred 5s. "A" deferred units have been active at 22s.

There was again more business in shares of locomotive builders and engineers. This is because prospects look brighter than for a long time, in view of the large sums that in due course must be spent on modernising the railways. On the other hand, it is recognised that in export markets business is extremely keen with Germany becoming a stronger competitor in many ways. Nevertheless the prevailing view is that, so far as can be judged, locomotive building and engineering companies seem to have reasonable prospects of improved dividends. In respect of the past year it is generally assumed that dividends will be maintained, and on this basis, yields are generally quite attractive.

Beyer Peacock were active again and changed hands around 49s. 3d. Charles Roberts 5s. shares were 9s. 9d., Birmingham Carriage 35s. 9d. and Hurst Nelson 39s. 3d. North British Locomotive were 19s. Elsewhere, Vulcan Foundry eased to 32s., Gloucester Wagon 10s. shares were 18s. 6d. and Wagon Repairs 5s. shares 17s. 4½d. Westinghouse Brake were 86s. 3d. Associated Electrical strengthened to 60s. 9d. and Siemens were 42s. 9d. awaiting the outcome of the negotiations which may result in a bid for the balance of Siemens' ordinary shares by Associated Electrical. G.E.C. have been firm at 58s. 9d. and English Electric 56s. 6d.

Vickers strengthened to 38s. mainly owing to news of the latest U.S. order for Viscount aircraft. Tube Investments, which have been a rising market ever since the chairman's annual statement, rose further to 81s. 6d. Dowty Group 10s. shares were also prominent on the results and annual statement, having risen to 31s. 6d.

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The engagement of persons answering Situations Vacant advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she, or the employer, is excepted from the provisions of the Notification of Vacancies Order, 1952.

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INTERNATIONAL RAILWAY ASSOCIATIONS. Notes on the work of the various associations concerned with International traffic, principally on the European Continent. 2s. Bv post 2s. 2d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

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